

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2019

OR

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

For the transition period from to

Commission File Number 1-4858

INTERNATIONAL FLAVORS & FRAGRANCES INC.

(Exact name of registrant as specified in its charter)

New York

(State or other jurisdiction of incorporation or organization)

13-1432060

(I.R.S. Employer Identification No.)

521 West 57th Street, New York, NY 10019-2960

Registrant's telephone number, including area code (212) 765-5500

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, par value 12 1/2¢ per share	IFF	New York Stock Exchange
6.00% Tangible Equity Units	IFFT	New York Stock Exchange
0.500% Senior Notes due 2021	IFF 21	New York Stock Exchange
1.750% Senior Notes due 2024	IFF 24	New York Stock Exchange
1.800% Senior Notes due 2026	IFF 26	New York Stock Exchange

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT:

None

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

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

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

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

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

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

The aggregate market value of the voting stock held by non-affiliates of the Registrant was \$15,491,883,187 as of June 30, 2019.

As of February 26, 2020, there were 106,802,194 shares of the registrant's common stock, par value 12 1/2¢ per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement for the 2020 Annual Meeting of Shareholders (the "IFF 2020 Proxy Statement") are incorporated by reference in Part III of this Form 10-K.

INTERNATIONAL FLAVORS & FRAGRANCES INC.
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PART I

In this report, we use the terms “IFF,” “the Company,” “we,” “us” and “our” to refer to International Flavors & Fragrances Inc. and its subsidiaries.

ITEM 1. BUSINESS.

We are a leading innovator of sensory experiences that move the world. Our creative capabilities, global footprint, regulatory and technological know-how provide us a competitive advantage in meeting the demands of our global, regional and local customers around the world. The 2018 acquisition of Frutarom solidified our position as an industry leader across an expanded portfolio of products, resulting in a broader customer base across small, mid-sized and large companies and an expansion to new adjacencies that provides a platform for significant cross-selling opportunities.

Our product portfolio covers taste, scent and complementary adjacent products, and we have over 128,000 individual products that are provided to customers in approximately 200 countries. Our global manufacturing footprint allows us to optimize our supply chain and support our global and regional customers. As of December 31, 2019, we had 104 manufacturing facilities and 82 creative centers and application laboratories located in 44 different countries. We currently anticipate that we will continue to optimize our global facilities footprint as we seek opportunities to efficiently and cost-effectively deliver value to our global and regional customers.

Sales in 2019 were approximately \$5.1 billion which, management believes, makes us the second largest company in the taste, scent, nutrition and specialty ingredient industry. During the past few years, we have diversified our customer base and leveraged our technical expertise to significantly expand our global small and mid-sized customer base through acquisitions, including, Frutarom, and the development of Tastepoint. Based on 2019 sales, of our approximately 38,000 customers, approximately 35% are global consumer products companies and approximately 65% are small and mid-sized companies. During 2019, our 25 largest customers accounted for 38% of our sales. In 2019, no customer accounted for more than 10% of sales.

Our business is geographically diverse, with sales in the U.S. representing approximately 20% of sales in 2019. No other country represents more than 6% of sales. We believe that more significant future growth potential for taste and scent, and for our business, exists in the emerging markets (which we classify as all markets except North America, Japan, Australia, and Western, Southern and Northern Europe). As a result, we intend to continue to build on our multi-decade experience in the emerging markets. As our customers seek to grow their businesses in emerging markets, we provide them the ability to leverage our long-standing international presence and extensive market knowledge to help drive their brands in these markets.

For the periods presented in this Form 10-K, our business was organized in three segments: Taste, Scent and Frutarom. Beginning in the first quarter of fiscal year 2020, we are operating our business across two segments, Taste and Scent. As part of this new operating model, nearly all of the former Frutarom business segment was combined with the Taste segment. The financial results presented in this Form 10-K reflect the Taste, Scent and legacy Frutarom business segments prior to the realignment.

Vision 2021 and Frutarom Integration Initiative

Following the acquisition of Frutarom, we developed a new strategy, Vision 2021, targeting accelerated revenue and profitability growth. Vision 2021 has four "pillars":

- *Unlocking growth opportunities* - capitalizing on our expanded product portfolio, broader customer base and extensive geographic presence as well as cross-selling and integrated solutions
- *Driving innovation* - investing in high-growth and high-return platforms to continue to drive our research and development pipeline and accelerate long-term growth
- *Managing the Portfolio* - focusing on optimizing our portfolio to maximize value creation
- *Accelerating Business Transformation* - successfully integrating Frutarom while delivering on synergy targets and achieving productivity gains across the business base.

At the same time, we have been executing on our Frutarom integration plan to build our go-to-market business model by replicating the Tastepoint blueprint across certain markets, clarify roles and responsibilities and, thereby, accelerate decision-making through a series of organizational changes primarily aimed at driving cost synergies in the manufacturing and creative networks, procurement and overhead functions.

Pending Transaction with Nutrition & Biosciences, Inc.

On December 15, 2019, the Company entered into definitive agreements with DuPont de Nemours, Inc. (“DuPont”), including an Agreement and Plan of Merger, pursuant to which DuPont will transfer its nutrition and biosciences business (the “N&B Business”) to Nutrition & Biosciences, Inc., a Delaware corporation and wholly owned subsidiary of DuPont (“N&B”), and N&B will merge with and into a wholly owned subsidiary of IFF in exchange for a number of shares of IFF common stock, par value \$0.125 per share (“IFF Common Stock”) (collectively, the “DuPont N&B Transaction”). In connection with the transaction, DuPont will receive a one-time \$7.3 billion special cash payment (the “Special Cash Payment”), subject to certain adjustments. As a result of the DuPont N&B Transaction, holders of DuPont’s common stock will own approximately 55.4% of the outstanding shares of IFF on a fully diluted basis. We believe that the combination of IFF and the N&B Business will create a global leader in high-value ingredients and solutions in the global Food & Beverage, Home & Personal Care and Health & Wellness markets. We expect that the companies' complementary product portfolios will give the combined company leadership positions across key Taste, Texture, Scent, Nutrition, Enzymes, Cultures, Soy Proteins and Probiotics categories.

Completion of the DuPont N&B Transaction is subject to various closing conditions, including, among other things, (1) approval by IFF’s shareholders of the issuance of IFF Common Stock in connection with the transaction; (2) the effectiveness of the registration statements to be filed with the Securities and Exchange Commission pursuant to the Merger Agreement; and (3) the expiration of the applicable waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and obtaining certain other consents, authorizations, orders or approvals from governmental authorities. We expect that the transaction will close in early 2021.

Our Product Offerings

Taste

As a leading creator of flavor offerings, we help our customers deliver on the promise of delicious and healthy foods and drinks that appeal to consumers. While we are a global leader, our Taste business is more regional in nature, with different formulas that reflect local taste preferences. Consequently, we manage our Taste business geographically, creating products in our regional creative centers which allow us to satisfy local taste preferences, while also helping to ensure regulatory compliance and production standards. We develop thousands of different flavors and taste offerings for our customers, most of which are tailor-made. We continually develop new formulas to meet changing consumer preferences and customer needs.

Our Taste business comprises a diversified portfolio across flavor compounds, savory solutions, inclusions and nutrition and specialty ingredients. The savory solutions compounds, inclusions and nutrition and specialty ingredients products were included in the legacy Frutarom businesses during 2019 and we will begin reporting them under the Taste business segment in 2020.

Flavor Compounds. Our flavor compounds provide unique flavors that are ultimately used by our customers in savory products (soups, sauces, meat, fish, poultry, snacks, etc.), beverages (juice drinks, carbonated or flavored beverages, spirits, etc.), sweets (bakery products, candy, cereal, chewing gum, etc.), and dairy products (yogurt, ice cream, cheese, etc.).

Savory Solutions. Savory solutions include marinades or powder blends of flavors, natural colors, seasonings, functional ingredients and natural anti-oxidants that are primarily designed for the meat and fish industry.

Inclusions. Inclusions provide taste and texture by, among other things, combining flavorings with fruit, vegetables, and other natural ingredients for a wide range of food products, such as health snacks, baked goods, cereals, pastries, ice cream and other dairy products.

Nutrition and Specialty Ingredients. Our nutrition and specialty ingredients primarily consist of natural health ingredients, natural food protection, natural colors and flavor ingredients. Natural health ingredients include natural ingredients derived from plants and herbs, which provide, or are perceived as providing, health benefits. These ingredients are used in dietary supplements, functional food, infant and elderly nutrition, cosmetics, personal care and other over-the-counter products. Natural food protection ingredients consist of natural antioxidants and anti-microbials used for natural food preservation and shelf life extension to beverages, cosmetic and healthcare products, and pet food and feed additives. These ingredients reduce the oxidative deterioration and/or microbiology load that leads to rancidity or loss of flavor, color, and nutritional value. Natural colors comprise a wide array of natural colors and fruit and vegetable concentrates for food, beverage, and cosmetics.

Flavor Ingredients. The flavor ingredients market includes natural flavor extracts, specialty botanical extracts, distillates, essential oils, citrus products, aroma chemicals, and natural gums and resins. Such ingredients are used for food, beverage, and flavors and are often sold directly to food and beverage manufacturers who use them in producing consumer products.

Scent

Our global Scent business creates fragrance compounds and fragrance ingredients that are integral elements in the world's finest perfumes and best-known household and personal care products. We believe our unique portfolio of natural and synthetic ingredients, global footprint, innovative technologies and know-how, deep consumer insight and customer intimacy make us a market leader in scent.

Our Scent business is a vertically integrated operation, originating in our research facilities with the development of natural, synthetic and proprietary molecules and innovative delivery systems, progressing to our creative centers, application laboratories and consumer insight teams where our perfumers partner with our customers to create unique fragrance compounds for use in a variety of end-use products. Finally, we produce these products in our manufacturing facilities in a consistent, high-quality and cost-effective manner. We also produce cosmetic active and functional ingredients for use in cosmetics. By providing our fragrance development teams with an extensive portfolio of innovative, high-quality and effective ingredients to support their creativity, we are able to provide our customers with a unique identity for their brands. These ingredients or fragrance compounds can then be combined with our innovative delivery systems which are key differentiators in the growth of our consumer fragrance portfolio. In September 2019, we opened our new Home & Fabric Care Innovation Center in Holmdel, New Jersey, a 60,000 square-foot research and development hub, to further drive innovation in our home care and fabric care categories, including digital olfaction technology, immersive virtual reality scent experiences, and the latest generation of encapsulation technology.

Fragrance Compounds. Fragrance compounds are unique and proprietary combinations of multiple ingredients that are ultimately used by our customers in their consumer goods. Our creative and commercial teams within fragrance compounds are organized into two broad categories, fine fragrances and consumer fragrances.

Our fine fragrances focus on perfumes and colognes. Our scientists and perfumers collaborate to develop new molecules, new natural extractions, and innovative processes to create unique, inspiring fragrances. We have created some of the industry-leading fine fragrance classics as well as cutting-edge niche fragrances, as evidenced by the number of top sellers and award winners.

Our consumer fragrances include five end-use categories of products:

- Fabric Care, including laundry detergents, fabric softeners and specialty laundry products;
- Home Care, including household cleaners, dishwashing detergents and air fresheners;
- Personal Wash, including bar soaps and shower gels;
- Hair Care, including shampoos and conditioners; and
- Toiletries, including deodorants and shaving creams.

Ingredients. Fragrance ingredients consists of natural and synthetic, of active and functional ingredients that are used internally and sold to third parties, including competitors, for use in preparation of compounds. While the principal role of our fragrance ingredients facilities is to support our fragrance compounds business, we utilize our excess manufacturing capacity to manufacture and sell certain fragrance ingredients to third parties. We believe that this business allows us to leverage our fixed costs while maintaining the security of supply for our perfumers and ultimately our customers. Fragrance ingredients available for sale to third parties include innovative ingredients that leverage our manufacturing experience as well as a limited amount of cost-competitive, commodity ingredients. Fragrance ingredients also includes our cosmetic active and functional ingredients, which provide biologists and cosmetic chemists with innovative solutions to address cosmetic challenges such as skin aging and hair protection. With approximately 1,800 separate fragrance and active and functional ingredients, plus additional botanicals and delivery systems, we believe we are a leader in the industry with the breadth of our product portfolio.

Legacy Frutarom

During 2019, our Frutarom business created and manufactured a broad suite of flavor compounds and specialty fine ingredients, largely targeting small, local and regional customers. As noted above, beginning in fiscal year 2020, our business segments have been realigned such that nearly all of the Frutarom business segment will combine with our Taste business. The financial results presented in this Form 10-K reflect the Scent, Taste and Frutarom business segments prior to the realignment.

Consumer Insights, Research and Product Development Process

The markets in which we compete require constant innovation to stay ahead of the curve and to be competitive. Consumer preferences tend to drive change in our markets, and as science evolves and sustainability continues to be a key factor to customers and consumers, we must continue to strengthen our research and development platforms and adapt our capabilities to provide differentiated products to our customers.

Consumer Insights

We believe that the first step to creating an innovative and unique flavor or fragrance experience begins with gaining insight into the consumer and emerging trends. By developing a deep understanding of what consumers value and prefer through our consumer insight programs, we are better able to focus our research and development and creative efforts.

Our consumer science, insight and marketing teams interpret trends, monitor product launches, analyze quantitative market data, and conduct numerous consumer interviews annually. Our sensory experts direct research programs exploring topics such as fragrance performance, the psychophysics of sensory perception (including chemesthetic properties such as warming, cooling, and tingling), the genetic basis for flavor and fragrance preference, and the effects of aromas on mood, performance, health, and well-being.

Based on this information, we develop innovative and proprietary programs to evaluate potential products that enable us to understand the emotional connections between a prospective product and the consumer. We believe this ability to pinpoint the likelihood of a product's success translates into stronger brand equity, resulting in increased returns and greater market share gains for our customers as well as for IFF.

Research and Development

We consider our research and development infrastructure to be one of our key competencies and critical to our ability to provide differentiated products to our customers. We focus and invest substantial resources in the research and development of new and innovative molecules, compounds, formulas and technologies and the application of these to our customers' products. Using the knowledge gained from our consumer insights programs, we strategically focus our resources around key research and development platforms that address or anticipate consumer needs or preferences. By aligning our capabilities and resources to these platforms, we ensure the proper support and focus for each program so that it can be further developed and eventually accepted for commercial application.

We have been granted 415 patents in the United States since 2000 and we have developed many unique molecules and delivery systems for our customers that are used as the foundations of successful flavors and fragrances around the world.

We have traditionally conducted our principal basic research and development activities in Union Beach, New Jersey, where we employ scientists and application engineers who collaborate with our other research and development centers around the world, to support the:

- discovery of new materials;
- development of new technologies, such as delivery systems;
- creation of new compounds; and
- enhancement of existing ingredients and compounds.

We also have key basic research and development centers in Tilburg, the Netherlands, Neuilly and Grasse, France, and Nanjing, China. As of December 31, 2019, we employed approximately 2,300 people globally in research and development activities.

Our ingredients research program discovers molecules found in natural substances and creates new molecules that are subsequently tested for their sensorial value. To broaden our offerings of natural, innovative and unique products, we seek collaborations with research institutions and other companies throughout the world. We have established a number of such collaborations to strengthen our innovation pipeline. We may also consider acquiring companies that could provide access to new technologies.

The development of new and customized flavor and fragrance compounds is a complex process calling upon the combined knowledge of our scientists, flavorists and perfumers. Scientists from various disciplines work in project teams with flavorists and perfumers to develop flavor and fragrance compounds with consumer preferred performance characteristics. The development of new flavor and fragrance compounds requires (i) an in-depth knowledge of the flavor and fragrance

characteristics of the various ingredients we use, (ii) an understanding of how the many ingredients in a consumer product interact and (iii) the creation of controlled release and delivery systems to enhance flavor and fragrance performance. To facilitate this process, we have a scientific advisory board that provides external perspectives and independent feedback on our research and development and sustainability initiatives.

Creative Application

Through our global network of creative centers and application laboratories, we create or adapt the basic flavors or fragrances compounds that we have developed in the research and development process to commercialize for use in our customers' consumer products. Our global creative teams consist of perfumers, fragrance evaluators and flavorists, as well as marketing, consumer science, consumer insights, and technical application experts, from a wide range of cultures and nationalities. In close partnership with our customers' product development groups, our creative teams create the sensory experiences that our customers are seeking in order to satisfy consumer demands in each of their markets.

New flavor and fragrance development is driven by a variety of sources including requests from our customers, who are in need of specific flavors and fragrances for use in a new or modified consumer product, or as a result of internal initiatives stemming from our consumer insights program. Our product development team works in partnership with our scientists and researchers to optimize the consumer appeal and relevance of our flavors and fragrances. A collaborative process between our researchers, our product development team and our customers then follows to perfect the flavors and fragrances, so they are ready to be included in the final consumer product.

In addition to creating new flavors and fragrances, our researchers and product development teams advise customers on ways to improve their existing products by moderating or substituting current ingredients with more readily accessible or less expensive materials enhancing their yield. This often results in creating a better value proposition for our customers.

Our flavors and fragrances compound formulas are treated as trade secrets and remain our proprietary assets. Our business is not materially dependent upon any individual patent, trademark or license.

Supply Chain

We strive to provide our customers with consistent quality products on a timely and cost-effective basis by managing all aspects of the supply chain, from raw material sourcing through manufacturing, quality assurance, regulatory compliance and distribution.

Procurement

In connection with the manufacture of compounds, we use natural ingredients and, primarily in our fragrance compounds, synthetic ingredients. We purchase approximately 23,000 different raw materials from an extensive network of domestic and international suppliers and distributors.

With the acquisition of Frutarom, we significantly increased our natural products and therefore the percentage of our ingredients that are natural or crop-related has increased. Natural ingredients are derived from flowers, fruits and other botanical products, as well as from animal products, and contain varying numbers of organic chemicals that are responsible for the fragrance or flavor of the natural product. Natural products are purchased in processed or semi-processed form. Some are used in compounds in the state in which they are obtained and others are used after further processing. Natural products, together with various chemicals, are also used as raw materials for the manufacture of synthetic ingredients by chemical processes. Our flavor products also include extracts and seasonings derived from various fruits, vegetables, nuts, herbs, spices, and microbiologically-derived ingredients.

In order to ensure our supply of raw materials, achieve favorable pricing and provide timely transparency regarding inflationary trends to our customers, we continue to be focused on:

- purchasing under contract with fixed or formula based pricing for set time periods;
- entering into supplier relationships to gain access to supplies and available capacity that we do not have;
- implementing indexed pricing;
- reducing the complexity of our formulations; and
- evaluating whether it is more profitable to buy or make an ingredient
- local country sourcing with our own procurement professionals.

Manufacturing and Distribution

As of December 31, 2019, we had 186 manufacturing facilities and creative centers and application laboratories located in 44 different countries. Our major manufacturing facilities are located in the United States, the Netherlands, Spain, Great Britain, Germany, Indonesia, Turkey, Brazil, Mexico, Slovenia, China, India, and Singapore. Based on the regional nature of the Taste business and the concerns regarding the fragile nature of transporting raw materials, we have typically established smaller manufacturing facilities in our local markets that are focused on local needs. Products within the Scent business are typically composed of compounds that are more stable and more transportable around the world. Consequently, we have fewer manufacturing facilities within our Scent business, which produce compounds and ingredients for global distribution.

In connection with the integration of Frutarom, we have undertaken to optimize our global operations footprint to efficiently and cost-effectively deliver value to our global customers. As part of this effort, we expect to close approximately 35 manufacturing sites over the next two years with most of the closures targeted to occur before the end of fiscal 2020. During 2019, the Company announced the closure of 10 facilities, of which six facilities are in Europe, Africa and Middle East, one facility in each North America, Greater Asia and Latin America regions.

Our supply chain initiatives are focused on increasing capacity and investments in key technologies. Within our more mature markets, we tend to focus on consolidation and cost optimization as well as implementing new technologies. In addition to our own manufacturing facilities, we develop relationships with third parties, including contract manufacturing organizations, that permit us to expand access to the technologies, capabilities and capacity that we need to better serve our customers.

Sustainability

Over the past several years, we have redefined the way we envision sustainability. Moving from the traditional “take-make-dispose” model, we have embraced the circular economy model - one that is restorative and regenerative by design, which we believe is key in safeguarding the wellbeing of our consumers, the health of our planet and the integrity of our business.

Customers and consumers want to know if the products they are purchasing are responsibly sourced and environmentally conscious. Our sustainability vision and strategy are designed to meet these global trends, and we are committed to making real progress happen at every opportunity. Following the Frutarom acquisition, we are working on assessing our combined environmental footprint with the intent of identifying synergies, gaps and opportunities in our sustainability efforts and upgrading the legacy Frutarom operations to better align them with the legacy IFF sustainability practices.

In line with our Vision 2021 strategy and our goal of redefining how we live in and care for the resources of our world, our sustainability goals include:

- *Reducing Our Environmental Footprint* - we will seek to leverage synergies and manage our combined footprint to reduce our environmental impact.
- *Strengthening Responsible Sourcing* - we will continue to assess our supply chain and seek to increase sustainable sourcing across our combined supply base.
- *Driving Sustainable Innovation* - we will seek to embed sustainability into our products and processes.
- *Embracing People and Communities* - we will seek to create a culture of diversity and inclusiveness while giving back to the communities where we source and operate.

In 2019, we were recognized for our sustainability efforts with the 2019 “Industry Mover” award from SAM, a subsidiary of RobecoSAM which specializes in providing environmental, social and governance (ESG) data, benchmarks and ratings. The award acknowledges IFF’s top-scoring performance in economic, social and environmental categories. We also reconfirmed our commitment to mitigate climate change by signing the United Nation’s Business Ambition for 1.5°C: Our Only Future pledge, committing to set science-based emissions targets to limit global temperature rise to 1.5 degrees Celsius. In addition, among other distinctions, we were named to Barron’s 100 Most Sustainable Companies List for the second consecutive year, recognizing our exceptional environmental, social and corporate governance performance.

For more detailed information about our sustainability programs and performance, please refer to our annual sustainability report.

Governmental Regulation

We develop, produce and market our products in a number of jurisdictions around the world and are subject to federal, regional and local legislation and regulations in each of the various countries. Our products, which among other industries, are intended for use in food, beverage and pharmaceutical industries, are subject to strict quality and regulatory standards. As a result, we in turn are required to meet these strict standards which, in recent years, have become increasingly stringent and affect both existing as well as new products.

Our products and operations are subject to regulation by governmental agencies in each of the markets in which we operate. These agencies include (1) the Food and Drug Administration and equivalent international agencies that regulate flavors and other ingredients in consumer products, (2) the Environmental Protection Agency and equivalent international agencies that regulate our manufacturing facilities, (3) the Occupational Safety and Health Administration and equivalent international agencies that regulate the working conditions in our manufacturing, research laboratories and creative centers, (4) local and international agencies that regulate trade and customs, (5) the Drug Enforcement Administration and other local or international agencies that regulate controlled chemicals that we use in our operations and (6) the Chemical Registration/Notification authorities that regulate chemicals that we use in, or transport to, the various countries in which we manufacture and/or market our products. We have seen an increase in registration and reporting requirements concerning the use of certain chemicals in a number of countries, such as Registration, Evaluation, Authorisation and Restriction of Chemicals (“REACH”) regulations in the European Union, as well as similar regulations in other countries. In addition, the acquisition of Frutarom introduced business adjacencies which broaden the landscape of regulatory compliance requirements applicable to IFF.

In addition, we are subject to various rules relating to health, work safety and the environment at the local and international levels in the various countries in which we operate. Our manufacturing facilities throughout the world are subject to environmental standards relating to air emissions, sewage discharges, the use of hazardous materials, waste disposal practices and clean-up of existing environmental contamination. In recent years, there has been a significant increase in the stringency of environmental regulation and enforcement of environmental standards, and the costs of compliance have risen significantly, a trend we expect will continue in the future.

Competition

The markets for taste and scent are part of a larger market that supplies a wide variety of ingredients and compounds used in consumer products. The broader market includes functional foods and food additives, including seasonings, texturizers, spices, enzymes, certain food-related commodities, and fortified products as well as nutritional ingredients, supplements and active cosmetic ingredients.

The global market for taste and scent has expanded consistently, primarily as a result of an increase in demand for, and an increase in the variety of, consumer products containing flavors and fragrances.

The market for taste and scent is highly competitive. Based on annual sales, our main competitors consist of (1) the three other large global flavor and fragrance manufacturers, Givaudan, Firmenich and Symrise, (2) mid-sized companies, (3) numerous regional and local manufacturers and (4) consumer product companies who may develop their own flavors or fragrances.

We believe that our ability to compete successfully in the flavors and fragrances sub-market is based on:

- our in-depth understanding of consumers,
- vertical integration,
- innovation and technological advances from our research and development activities and our perfumers and flavorists,
- our ability to tailor products to customers’ needs,
- our ability to manufacture products on a global scale, and
- broad-based regulatory capabilities.

Large multi-national customers and, increasingly, mid-sized customers, may limit the number of their suppliers by placing some on “core lists,” giving them priority for development and production of their new or modified products. To compete more successfully in this environment, we must make continued investments in customer relationships and tailor our research and development efforts to anticipate customers’ needs, provide effective service and secure and maintain inclusion on these “core lists.”

Private label manufacturers, mostly medium-sized, local or small food manufacturers, constitute a growing segment in the flavor market. Over the last decade, with the strengthening of supermarket chains, online platforms and growing consumer price consciousness, demand and consumption of private label products has grown at a faster rate than the brand food industry rate. We believe that new business opportunities will continue to arise from these clients as they are increasing their demand for products that are similar to existing products in the market, distinctive premium products, as well as more innovative products.

The global demand for functional foods, food additives, natural ingredients, nutritional ingredients and supplements and active cosmetic ingredients is also growing. With our recent acquisitions, we have expanded our offerings to include products within the functional food ingredient market, including ingredients focused on improving the health and wellness characteristics of a consumer good, the nutritional supplement and infant nutrition markets and the cosmetic actives market. While the three other large global flavor and fragrance manufacturers, Givaudan, Firmenich and Symrise, are active in these areas, we also compete with specialty chemical companies, other large multi-national companies and smaller regional and local participants that offer products that address these same needs.

Our People

The success of our business is built on our talented employees. Our global team uses the latest science, insights, research, creative thinking and customer understanding to develop products that make an impact with customers and consumers across the world. At December 31, 2019, we had approximately 13,600 employees worldwide, of whom approximately 2,000 are employed in the United States. We believe that relations with our employees are good.

Availability of Reports

We make available free of charge on or through the “Investors” link on our website, www.iff.com, all materials that we file electronically with the Securities and Exchange Commission (“SEC”), including 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, as soon as reasonably practicable after electronically filing such materials with, or furnishing them to, the SEC. During the period covered by this Form 10-K, we made all such materials available through our website as soon as reasonably practicable after filing such materials with the SEC.

The SEC maintains an Internet website, www.sec.gov, that contains reports, proxy and information statements and other information that we file electronically with the SEC.

A copy of our Corporate Governance Guidelines, Code of Business Conduct and Ethics, and the charters of the Audit Committee, Compensation Committee and Nominating and Governance Committee of the Board of Directors are posted on the “Investors” section of our website, www.iff.com.

Our principal executive offices are located at 521 West 57th Street, New York, New York 10019 (212-765-5500).

Executive Officers of Registrant

The current executive officers of the Company, as of March 3, 2020, are listed below.

Name	Age	Position
Andreas Fibig	58	Chairman of the Board and Chief Executive Officer
Rustom Jilla	58	Executive Vice President and Chief Financial Officer
Richard A. O’Leary	59	Executive Vice President, Integration Officer
Nicolas Mirzayantz	57	Divisional Chief Executive Officer, Scent
Matthias Haeni	54	Divisional Chief Executive Officer, Taste
Gregory Yep	55	Executive Vice President, Chief Global Scientific & Sustainability Officer
Susana Suarez-Gonzalez	50	Executive Vice President, Chief Human Resources Officer
Anne Chwat	60	Executive Vice President, General Counsel and Corporate Secretary
Francisco Fortanet	51	Executive Vice President, Operations

Andreas Fibig has served as our Chairman since December 2014 and Chief Executive Officer since September 2014. Mr. Fibig has been a member of our Board of Directors since 2011. From 2008 to 2014, Mr. Fibig served as President and Chairman of the Board of Management of Bayer HealthCare Pharmaceuticals, the pharmaceutical division of Bayer AG. Prior to Bayer HealthCare Pharmaceuticals, Mr. Fibig held a number of positions of increasing responsibility at Pfizer Inc., a research-based

pharmaceutical company, including as Senior Vice President in the US Pharmaceutical Operations group from 2007 through 2008 and as President, Latin America, Africa and Middle East from 2006 through 2007.

Rustom Jilla has served as our Executive Vice President and Chief Financial Officer since January 2020. From July 2015 to January 2020, Mr. Jilla served as Executive Vice President and Chief Financial Officer of MSC Industrial Direct Co., Inc., a distributor of metalworking and maintenance repair operations, products and services. From April 2013 to September 2014, Mr. Jilla served as CFO for Dematic Group, a European based global provider of warehouse logistics and inventory management solutions. Prior to that Mr. Jilla was CFO of Ansell Limited, an Australian-listed global leader in protective solutions from September 2002 to April 2013. Before that, Mr. Jilla held various leadership positions in finance and product management at PerkinElmer Inc. and The BOC Group, a British public multinational industrial gas company, in the U.S. and New Zealand. He began his career in auditing with PricewaterhouseCoopers LLP in Sri Lanka.

Richard A. O'Leary has served as our Executive Vice President and Integration Officer since January 2020. Previously, Mr. O'Leary served as our Executive Vice President and Chief Financial Officer since October 2016. Mr. O'Leary originally joined our Company in July 2007. Mr. O'Leary was our Senior Vice President, Controller and Chief Accounting Officer from July 2015 until his appointment as Chief Financial Officer, and served as our Vice President and Controller from May 2009 to November 2014. Mr. O'Leary served as our Interim Chief Financial Officer from November 2014 to July 2015 and from July 2008 to May 2009. Mr. O'Leary was also our Vice President, Corporate Development from July 2007 to May 2009. Prior to joining our Company, Mr. O'Leary held various positions at International Paper Co., a paper and packaging company, which he originally joined in 1986, including Chief Financial Officer of International Paper Company (Brazil) from June 2004 to June 2007. Prior to International Paper Co., Mr. O'Leary was with Arthur Young & Co.

Nicolas Mirzayantz has served as our Divisional Chief Executive Officer, Scent since October 2018. Mr. Mirzayantz originally joined our Company in 1988 and was our Group President, Fragrances from January 2007 to October 2018. Mr. Mirzayantz also served as a member of our Temporary Office of the Chief Executive Officer from October 1, 2009 until February 2010, our Senior Vice President, Fine Fragrance and Beauty Care and Regional Manager, North America from March 2005 to December 2006, our Senior Vice President, Fine Fragrance and Beauty Care from October 2004 to February 2005, and our Vice President Global Fragrance Business Development from February 2002 to September 2004.

Matthias Haeni has served as our Divisional Chief Executive Officer, Taste since October 2018. Mr. Haeni joined our Company in 2007 as Regional General Manager, Flavors Greater Asia and was our Group President, Flavors from April 2014 to October 2018. In 2010, Mr. Haeni transferred to Hilversum, The Netherlands where he served as Regional General Manager for Flavors in Europe, Africa, and the Middle East ("EAME"). Prior to joining our Company, Mr. Haeni was based in Singapore as Givaudan's Vice President of Commercial Flavors, Southeast Asia Pacific and held similar positions throughout EAME.

Gregory Yep has served as our Executive Vice President, Chief Global Scientific & Sustainability Officer since June 2016. Prior to joining our Company, Dr. Yep was Senior Vice President of Research, Development & Applications with The Kerry Group from January 2015 to June 2016. Prior to The Kerry Group, Dr. Yep was Senior Vice President of R&D at PepsiCo from June 2009 to December 2015 and was Global Vice President, Application Technologies at Givaudan Flavors and Fragrances from December 2005 to June 2009. Earlier in his career, Dr. Yep was at McCormick & Company, where he held executive roles of increasing responsibility in food science. Dr. Yep holds a bachelor's degree in biology and chemistry from the University of Pennsylvania and master's degree and Ph.D. in organic chemistry from Johns Hopkins University.

Susana Suarez-Gonzalez has served as our Executive Vice President, Chief Human Resources Officer since November 2016. Prior to joining our Company, Ms. Gonzalez was Senior Vice President, Global Operations & Centers Expertise, Human Resources of Fluor Corporation from 2014 to 2016. Ms. Gonzalez began her career at Fluor Corporation in 1991, and during her 25 years with the company, she held various leadership positions across several business groups and functions including construction, marketing, sales, project engineering and human resources.

Anne Chwat has served as our Executive Vice President, General Counsel and Corporate Secretary since August 2015 and as our Senior Vice President, General Counsel and Corporate Secretary from April 2011 to August 2015. Prior to joining our Company, Ms. Chwat served as Executive Vice President and General Counsel of Burger King Holdings, Inc., a fast food hamburger restaurant company, from September 2004 to April 2011. From September 2000 to September 2004, Ms. Chwat held various positions at BMG Music (now Sony Music Entertainment), including Senior Vice President, General Counsel and Chief Ethics and Compliance Officer.

Francisco Fortanet has served as our Executive Vice President, Operations since August 2015 and as Senior Vice President, Operations from February 27, 2012 to August 2015. In 2018, he was named Frutarom Integration lead. Mr. Fortanet joined our Company in 1995, and has served as our Vice President, Global Manufacturing Compounding from January 2007 to February 2012, our Vice President, Global Manufacturing from January 2006 to January 2007, our Regional Director of North America Operations from December 2003 to January 2005, the Project Manager of a special project in Ireland from May 2003

to December 2003, and as our Plant Manager in Hazlet, New Jersey from October 1999 to May 2003. Mr. Fortanet started his career in IFF-Mexico.

ITEM 1A. RISK FACTORS.

We routinely encounter and address risks in conducting our business. Some of these risks may cause our future results to be different - sometimes materially different - than we presently anticipate. Below are material risks we have identified that could adversely affect our business. How we react to material future developments, as well as how our competitors and customers react to those developments, could also affect our future results.

Risks Related to Our Business and Industry

We may not realize all the benefits anticipated from the Frutarom acquisition, which could adversely affect our business.

The success of the Frutarom acquisition ultimately depends on our ability to realize anticipated benefits from the transaction. Since the Frutarom acquisition, we have benefited from, and expect to continue to benefit from cost synergies through global footprint optimization across manufacturing, the realization of significant procurement synergies plus organizational and operational efficiencies in overhead expenses. We also expect to achieve revenue synergies by leveraging customer relationships across a much broader customer base and cross-selling legacy IFF and Frutarom technology and capabilities. If we fail to realize all the benefits that we expect to achieve from the Frutarom acquisition, our business could be adversely affected.

The integration of our legacy IFF business and Frutarom's business is a costly and time-consuming process, and we may face significant implementation challenges that will impact our ability to realize the expected benefits from the acquisition, including without limitation:

- potential disruption of, or reduced growth in, our historical core businesses, due to diversion of management attention as well as financial and other resources from our historical core business and uncertainty with our current customer and supplier relationships;
- loss of business as a result of changes in customer and/or competitor behaviors following the Frutarom acquisition, including our inability to keep certain customer accounts of Frutarom who may be direct competitors to IFF, or our need to deprioritize our business activities in certain markets based on market conditions;
- difficulties in achieving anticipated cost savings, synergies, business opportunities and growth prospects;
- challenges arising from the expansion of our product offerings into adjacencies with which we have limited experience, including functional foods and nutrition;
- the possibility of faulty assumptions underlying expectations regarding the integration;
- coordinating and integrating research and development teams across technologies and products to enhance product development while reducing costs;
- coordinating sales and marketing efforts to effectively position our capabilities and the direction of product development;
- ensuring regulatory compliance, quality, safety and sustainability standards across an organization of increased scale and complexity;
- retaining and efficiently managing our significantly expanded and decentralized customer base;
- the assumption of and exposure to unknown or contingent liabilities of Frutarom;
- unanticipated issues or higher than expected costs in consolidating and integrating corporate, information technology, finance and administrative infrastructures, and integrating and harmonizing business systems;
- combining and optimizing our manufacturing facilities and global supply chain as well as leveraging customer relationships for cross-selling opportunities;
- aligning compliance, quality, as well as safety and sustainability standards across operations;

- aligning processes, policies, procedures, technologies, operations, employee benefits, information technologies and systems across operations;
- difficulties in managing a larger and more complex combined company, addressing differences in business culture and retaining key personnel; and
- managing tax costs or inefficiencies associated with integrating the operations of the combined company.

Some of these factors are outside of our control and any one of them if not successfully managed could result in increased costs and diversion of management's time and energy, as well as reputational harm and decreases in the amount of expected revenue which could materially impact our business, financial condition and results of operations. If the anticipated benefits from the Frutarom acquisition are not fully realized, or take longer to realize than expected, the value of our common stock, revenues, levels of expenses and results of operations may be adversely affected.

The Frutarom acquisition resulted, and may continue to result, in significant costs, charges or other liabilities that could adversely affect the financial results of the combined company.

Following the acquisition of Frutarom, our financial results were adversely affected by restructuring charges, cash expenses and non-cash accounting charges incurred in connection with the acquisition. We expect to record total pretax restructuring charges related to the Frutarom acquisition of approximately \$65 million, of which \$10.4 million have been recorded since closing of the transaction through December 31, 2019, comprised of approximately \$6.1 million of severance and related benefit costs; \$0.5 million of asset write-downs and write-offs; and \$3.7 million of costs associated with exit and disposal activities. In addition, there are many processes, policies, procedures, operations, technologies and systems that are being integrated across our organization that will result in costs, including financial advisory, tax, information technology, legal, consulting and other professional advisory fees associated with these integration activities. Costs and expenses incurred in connection with the integration limit resources that may otherwise be available for investment in research and development and capital expenditures.

As a result of the acquisition, we assumed all of Frutarom's liabilities, including unknown and contingent liabilities. Due to the nature of the transaction and the characteristics of Frutarom, our ability to conduct extensive due diligence was limited and we may subsequently identify unknown liabilities, including those that Frutarom assumed in its prior acquisitions that are not currently probable or estimable. Prior to our acquisition, Frutarom completed 47 acquisitions since 2011, including 22 since the beginning of 2016. If we do not properly assess the scope of these liabilities or if these liabilities are neither probable nor estimable at this time, our future financial results could be adversely affected by unanticipated reserves or charges, unexpected litigation or regulatory exposure, unfavorable accounting charges, unexpected increases in taxes due, a loss of anticipated tax benefits or other adverse effects on our business, operating results or financial condition.

We may fail to realize the expected cost savings and increased efficiencies from or stay within our estimated costs of the Frutarom integration and our ongoing optimization of our manufacturing facilities may not be as effective as we anticipate.

Our ability to realize anticipated cost savings and synergies from the Frutarom manufacturing rationalization may be affected by a variety of factors which may impose significant risks to us and which may be out of our control, including:

- our ability to accurately estimate costs in multiple jurisdictions related to the consolidation, updating or closing of manufacturing facilities;
- our ability to successfully and efficiently manufacture the relocated product lines at a different manufacturing facility;
- our ability to effectively reduce overhead and integrate and retain employees of the relocated operations;
- difficulties in implementing and maintaining consistent standards, controls, procedures, policies and information systems;
- integrating newly acquired manufacturing, distribution and technology facilities;
- potential strains on our personnel, systems and resources and diversion of attention from other priorities; and
- unforeseen or contingent liabilities of the relocated operations, including tax liabilities.

Actual charges, costs and adjustments arising from these activities may vary materially from our estimates, and may require cash and non-cash integration and implementation costs or charges in excess of forecasted amounts, which could offset any such savings and other synergies and therefore could have an adverse effect on our margins.

Furthermore, as part of our ongoing strategy, we seek to enhance our manufacturing efficiency and align our geographic manufacturing footprint with our expectations of future growth and technology needs. For example, we are in the process of relocating one of our Fragrance Ingredients facilities in China and constructing new facilities in India and Indonesia. In addition, in connection with the Frutarom integration, we are consolidating, updating and/or closing manufacturing facilities to achieve synergies and align our manufacturing footprint.

Our incurrence of additional debt to pay the cash portion of the Frutarom consideration increased our financial leverage and could adversely affect our future cash flows and cost of capital.

In connection with the acquisition of Frutarom, we borrowed approximately \$3.3 billion of additional debt, thereby significantly increasing our leverage. As of December 31, 2019, our total debt consisted of \$4.4 billion. There may be circumstances in which required payments of principal and/or interest on our debt could adversely affect our cash flows, our operating results or our ability to return capital to our shareholders. Furthermore, our degree of leverage could adversely affect our future credit ratings. If we are unable to maintain or improve our current investment grade rating, it could adversely affect our future cost of funding, liquidity and access to capital markets. In addition, our current level of leverage could increase our vulnerability to sustained, adverse macroeconomic weakness, limit our ability to obtain further financing, and our ability to pursue certain operational and strategic opportunities, including large acquisitions. Our level of indebtedness as well as our failure to comply with covenants under our debt instruments, could adversely affect our business, results of operation and financial condition.

Failure to successfully establish and manage acquisitions, collaborations, joint ventures or partnerships could adversely affect our growth.

From time to time, we evaluate acquisition candidates that may strategically fit our business and/or growth objectives. If we are unable to successfully integrate and develop acquired businesses, we could fail to achieve anticipated synergies and cost savings, including any expected increase in revenues and operating results, which could have a material adverse effect on our financial results. We may also incur asset impairment charges related to acquisitions that reduce our earnings.

Additionally, we also evaluate and enter into collaborations, joint ventures or partnerships from time to time to enhance our research and development efforts or expand our product portfolios and technology. The process of establishing and maintaining collaborative relationships is difficult and time-consuming to negotiate, document and implement. We may not be able to successfully negotiate such arrangements or the terms of the arrangements may not be as favorable as anticipated. Furthermore, our ability to generate revenues from such collaborations will depend on our partners' abilities and efforts to successfully perform the functions assigned to them in these arrangements and these collaborations may not lead to development or commercialization of products in the most efficient manner, or at all. In addition, from time to time, we have acquired, and we may acquire, only a majority interest in companies and provided or may provide earnouts for the former owners along with the ability, at our option, or obligation, at the former owners' option, to purchase the minority interests at a future date at an established price. These investments may have additional risks and may not be as efficient as other operations as we may have fiduciary or contractual obligations to the minority investors and may rely on former owners for the continuing operation of the acquired business. If we are unable to successfully establish and manage these collaborative relationships and majority investments it could adversely affect our future growth.

Our business is highly competitive, and if we are unable to compete effectively our sales and results of operations will suffer.

The markets in which we compete are highly competitive. We face vigorous competition from companies throughout the world, including multi-national and specialized flavors, fragrances, nutrition and specialty ingredients companies, as well as consumer product companies which may develop their own flavors, fragrances or ingredients. In the flavors industry, we also face increasing competition from ingredient suppliers that have expanded their portfolios to include flavor offerings. Some of our competitors specialize in one or more of our product sub-segments, while others participate in many of our product sub-segments. In addition, some of our global competitors may have more resources than we do or may have proprietary products that could permit them to respond to changing business and economic conditions more effectively than we can. Consolidation of our competitors may exacerbate these risks.

As we continue to enter into adjacent markets, such as cosmetic ingredients, functional foods, specialty fine ingredients and nutrition products, we may face greater competition-related risks in these markets than with our core historic flavor and fragrances businesses. For example, the specialty fine ingredients market is more price sensitive than the flavors market and is characterized by relatively lower profit margins. Some fine ingredients products are less unique and more replaceable than competitors' products. There is no assurance that operating margins will remain at current levels, which could substantially impact our business, operating results and financial condition.

Competition in our business is based, among other things, on innovation, product quality, regulatory compliance, pricing, quality of customer service, the support provided by marketing and application groups, and understanding of consumers. It is difficult for us to predict the timing, scale and success of our competitors' actions in these areas. In particular, the discovery and development of new flavors and fragrance compounds and ingredients, protection of our intellectual property and development and retention of key employees are critical to our ability to effectively compete in our business. Advancement in technologies have also enhanced the ability of our competitors to develop substitutable products. Increased competition by existing or future competitors, including aggressive price competition, could result in the loss of sales, reduced pricing and margin pressure and could adversely impact our sales and profitability.

If we are unable to successfully market to our expanded and diverse Taste customer base, our operating results and future growth may be adversely affected.

As a result of our acquisition of Frutarom, the number of our customers significantly increased and became more diverse. Our historical customer base was primarily comprised of large and medium-sized food, beverage and consumer products companies. As a result of the expansion of our Tastepoint initiative and the Frutarom acquisition, and based on 2019 sales, we currently have approximately 38,000 customers, approximately 65% of which are small and mid-sized companies. This substantial increase in and diversity of our customer base requires us to adjust, among other things, our product development, manufacturing, distribution, marketing, customer relationship and sales strategy as well as adapt corporate, information technology, finance and administrative infrastructures to support different go-to-market models. We may experience difficulty managing the growth of a portfolio of customers that is more diverse in terms of its geographical presence as well as with respect to the types of services they require and the infrastructure required to deliver our products. If we are unable to successfully gain market share or maintain our relationships with these customers, our future growth could be adversely affected.

Our success depends on attracting and retaining talented people within our business. Significant shortfalls in recruitment or retention could adversely affect our ability to compete and achieve our strategic goals.

Attracting, developing, and retaining talented employees, including our perfumers, scientists and flavorists, is essential to the successful delivery of our products and success in the marketplace. Furthermore, as we continue to focus on innovation, our need for scientists and other professionals will increase. An important factor in our ability to realize our anticipated benefits from the Frutarom acquisition is our ability to retain key employees at Frutarom. The ability to attract and retain talented employees is critical in the development of new products and technologies which is an integral component of our growth strategy.

Competition for employees can be intense and if we are unable to successfully integrate, motivate and reward the acquired Frutarom employees or our current employees in our combined company, we may not be able to retain them. If we are unable to retain these employees or attract new employees in the future, our ability to effectively compete with our competitors and to grow our business could be adversely affected.

A significant portion of our sales is generated from a limited number of large multi-national customers, which are currently under competitive pressures that may affect the demand for our products and profitability.

During 2019, our 25 largest customers, each of which was a multi-national consumer products company, accounted for 38% of our sales. Large multi-national customers' market share, especially in the consumer product industry, continues to be pressured by new smaller companies and specialty players that cater to or are more adept at adjusting to the latest consumer trends, including towards natural products and clean labels, changes in the retail landscape (including e-commerce and consolidation), and increased competition from private labels, which have resulted and may continue to result in decreased demand for our products by such multi-national customers and volume erosion, especially in our Taste business. Furthermore, consolidations amongst our customers have resulted in larger and more sophisticated customers with greater buying power and additional negotiating strength. If such trends continue, our sales could be adversely impacted if we are not able to replace these sales.

In addition, large multi-national customers and, increasingly middle market customers, continue to utilize "core lists" of suppliers to improve margins and profitability. Typically, these "core list" suppliers are then given priority for new or modified products. Recently, these customers are making inclusion on their "core lists" contingent upon a supplier providing more favorable commercial terms, including rebates, which could adversely affect our margins. We must either offer competitive cost-in-use solutions to secure and maintain inclusion on these "core lists" or seek to manage the relationship without being on the "core-list." If we choose not to pursue "core-list" status due to profitability concerns or if we are unable to obtain "core-list" status, our ability to maintain our share of these customers' future purchases could be adversely affected and therefore our future results of operations.

We may not successfully develop and introduce new products that meet our customers' needs, which may adversely affect our results of operations.

Our ability to differentiate ourselves and deliver growth in line with our Vision 2021 strategy largely depends on our ability to successfully develop and introduce new products and product improvements that meet our customers' needs, and ultimately appeal to consumers. Innovation is a key element of our ability to develop and introduce new products. We cannot be certain that we will be successful in achieving our innovation goals, such as the development of new molecules, new and expanded delivery systems and other technologies. We currently spend approximately 6.7% of our sales on research and development; however this investment level may vary if available resources to invest in research and development are limited due to our ongoing integration and restructuring efforts. Our research and development investments may only generate future revenues to the extent that we are able to develop products that meet our customers' specifications, are at an acceptable cost and achieve acceptance by the targeted consumer market. Furthermore, there may be significant lag times from the time we incur research and development costs to the time that these research and development costs may result in increased revenue. Consequently, even when we "win" a project, our ability to generate revenues as a result of these investments is subject to numerous customer, economic and other risks that are outside of our control, including delays by our customers in the launch of a new product, the level of promotional support for the launch, poor performance of our third-party vendors, anticipated sales by our customers not being realized or changes in market preferences or demands, or disruptive innovations by competitors.

Natural disasters, public health crises (such as the recent Coronavirus outbreak), international conflicts, terrorist acts, labor strikes, political crisis, accidents and other events could adversely affect our business and financial results by disrupting development, manufacturing, distribution or sale of our products.

As a company engaged in the global development, manufacture and distribution of products, we are subject to the risks inherent in such activities, including industrial accidents, environmental events, strikes and other labor disputes, product quality control issues, safety, licensing requirements and other regulatory issues, as well as natural disasters, public health crises, such as pandemics or epidemics, international conflicts, terrorist acts and other external factors over which we have no control.

While we operate research and development, manufacturing and distribution facilities throughout the world, many of these facilities are extremely specialized and certain of our research and development or creative laboratories facilities are uniquely situated to support our research and development efforts while certain of our manufacturing facilities are the sole location where a specific ingredient or product is produced. If our research and development activities or the manufacturing of ingredients or products were disrupted, the cost of relocating or replacing these activities or reformulating these ingredients or products may be substantial, which could result in production or development delays or otherwise have an adverse effect on our margins, operating results and future growth.

For example, in December 2019, there was an outbreak of a novel strain of coronavirus (COVID-19) in Wuhan, China that has since spread to other regions in China and the rest of the world. To contain the outbreak, the Chinese central government extended the Lunar New Year holiday for one week and issued guidance pursuant to which local governments in China have taken temporary measures to limit large gatherings and impose travel restrictions. As a result, a portion of our manufacturing plants and offices in China were required to close for a week. The outbreak may result in additional or more extensive travel restrictions, closures, disruptions of businesses or facilities in China or other affected regions around the world or lead to social, economic, political or labor instability in the affected areas may impact our, our suppliers' or our customers' operations. The outbreak may adversely affect our financial condition and results of operations. At this point, the extent of such impact is uncertain.

A disruption in our supply chain, including the inability to obtain ingredients and raw materials from third parties, could adversely affect our business and financial results.

In connection with our manufacture of our fragrance and flavor products, we often rely on third party suppliers for ingredients and raw materials that are integral to our manufacture of such compounds. Our purchases of raw materials are subject to fluctuations in market price and availability caused by weather conditions, climate change, as further discussed below, market conditions, governmental actions and other factors beyond our control affecting us and/or our suppliers. Import alerts or specific country regulations may impair or delay our ability to obtain sufficient quantity of certain ingredients, raw materials and naturals at the relevant manufacturing facility. In addition, our ingredient or raw material suppliers, similar to us, are subject to risks, as applicable, inherent in agriculture, manufacturing and distribution on a global scale, including industrial accidents, environmental events, strikes and other labor disputes, disruptions in supply chain or information systems, disruption or loss of key research or manufacturing sites, product quality control, safety and environmental compliance issues, licensing requirements and other regulatory issues, as well as natural disasters, global or local health crisis, international conflicts, terrorist acts and other external factors over which they have no control. These suppliers also could become insolvent or experience other financial distress. For example, in 2017, a fire at the manufacturing facility of BASF Group ("BASF"), one of

our suppliers, caused them to declare a force majeure and has resulted in industry disruption due to the lack of availability of certain ingredients used in many fragrance compounds.

These risks are enhanced since we often rely on a limited number of suppliers for particular ingredients. If our suppliers are unable to supply us with sufficient quantities of ingredients and raw materials to meet our needs, we would need to seek alternative sources of such materials or pursue our own production of such ingredients or direct acquisition of such raw materials. However, for certain of our ingredients and raw materials we rely on a limited number of suppliers where there are not readily available alternatives. If we are unable to obtain or manufacture alternative sources of such ingredients or raw materials at a similar cost, we would seek to (i) reformulate our compounds and/or (ii) increase pricing to reflect the higher supply cost. However, if we are not able to successfully implement any of these alternatives, we could experience disruptions in production, increased cost of sales and a corresponding decrease in gross margin or reduced sales, especially if our competitors were able to more successfully adjust to such market disruption. At the same time, industry-wide supply disruptions, such as the one caused by the BASF incident, may lead to broader market shortages and sales volatility. Such fluctuations and decrease in gross margin could have a material adverse effect on our business, results of operations and financial condition.

Volatility and increases in the price of raw materials, energy and transportation, including due to climate change, could harm our profits.

We use many different raw materials for our business, particularly natural products, including essential oils, extracts and concentrates derived from fruits, vegetables, flowers, woods and other botanicals, animal products, raw fruits, organic chemicals and petroleum-based chemicals. We have experienced price volatility with respect to raw materials. For example, there has been industry-wide price volatility of certain ingredients used in fragrance compounds due to the BASF incident and in 2019 we experienced increases in the prices of certain naturals.

Natural products represent approximately half of our raw material spend, and we expect such volatility to continue in the near future. In addition, because we offer a substantial number of natural product offerings and often rely on a limited number of suppliers for certain products, this risk may be exacerbated. There is growing evidence that carbon dioxide and other greenhouse gases in the atmosphere may have an adverse impact on global temperatures, weather and precipitation patterns, growing and harvesting conditions, and the frequency and severity of extreme weather and natural disasters, such as floods, wildfires, droughts and water scarcity. To the extent such climate change effects have a negative impact on crop size and quality, it could impact the availability and pricing of these natural products. If we are unable to increase the prices to our customers of our products to offset raw material and other input cost increases, or if we are unable to achieve cost savings to offset such cost increases, we could fail to meet our cost expectations and our profits and operating results could be adversely affected. Increases in prices of our products to customers may lead to declines in sales volumes, and we may not be able to accurately predict the volume impact of price increases, which could adversely affect our financial condition and results of operations.

Similarly, commodities and energy prices are subject to significant volatility caused by, among other things, market fluctuations, supply and demand, currency fluctuations, production and transportation disruptions, climate change and weather conditions, and other world events. As we source many of our raw materials globally to help ensure quality control, if the cost of energy, shipping or transportation increases and we are unable to pass along these costs to our customers, our profit margins would be adversely affected. Furthermore, increasing our prices to our customers could result in long-term sales declines or loss of market share if our customers find alternative suppliers or choose to reformulate their consumer products to use fewer ingredients, which could have an adverse long-term impact on our results of operations. Our ability to price our products competitively to timely reflect volatility in prices of raw material and ingredients is critical to maintain and grow our sales. To mitigate our sourcing risk, we maintain strategic stock levels for critical items. However, if we do not accurately estimate the amount of raw materials that will be used for the geographic region in which we will need these materials or competitively price our products, our margins could be adversely affected.

A significant data breach or other disruption to our information technology systems could disrupt our operations, result in the loss of confidential information or personal data, and adversely impact our reputation, business or results of operations.

We rely on information technology systems, including some managed by third-party providers, to conduct business and support our business processes, including those relating to product formulas, product development, manufacturing, sales, order and invoice processing, production, distribution, internal communications and communications with third parties throughout the world, processing transactions, summarizing and reporting results of operations, complying with regulatory, tax or legal requirements, and collecting and storing customer, supplier, employee and other stakeholder information. Cyber security incidents, data breaches and operational disruptions caused by cyberattacks or cyber-intrusions are constantly evolving in nature, becoming more sophisticated and are being made by groups and individuals with a wide range of expertise and motives,

including computer hackers, foreign governments, cyber terrorists, cyber criminals and malicious employees or other insiders. We and our third-party providers are subject to risks posed by such incidents, which can take many forms, including code anomalies, “Acts of God,” data leakage, hardware or software failures, human error, cyber extortion, password theft or introduction of viruses, malware, ransomware, including through phishing emails.

A disruption to our information technology systems could result in the loss of confidential business, customer, supplier or employee information, litigation or fines and may require substantial investigations, repairs or replacements, or impact our ability to summarize and report financial results in a timely manner, resulting in significant financial, legal, and relational costs and potentially harming our reputation and adversely impacting our operations, customer service and results of operations. Because we do not currently have duplications of our information technology systems and we continue to work on upgrading and integrating Frutarom’s systems into ours, these risks may be exacerbated. Additionally, a security or data breach could require us to devote significant management and financial resources to address the problems created. These types of adverse impacts could also occur in the event the confidentiality, integrity or availability of company, customer, supplier or employee information are compromised due to a data loss by us or a trusted third party. We or the third parties with which we share information may not discover any such incidents and loss of information for a significant period of time after the incident occurs. While we have security processes and initiatives in place, we may be unable to detect or prevent a breach or disruption in the future. Additionally, while we have insurance coverage designed to address certain aspects of cyber risks in place, such insurance coverage may be insufficient to cover all losses or all types of claims that may arise.

If we fail to comply with data protection laws in the U.S. and abroad, we may be subject to fines, penalties and other costs.

Recently, there has also been heightened regulatory and enforcement focus on data protection in the U.S. (at both the state and federal level) and abroad, and an actual or alleged failure to comply with applicable U.S. or foreign data protection regulations or other data protection standards may expose us to litigation (including, in some instances, class action litigation), fines, sanctions or other penalties, which could harm our reputation and adversely impact our business, results of operations and financial condition. This regulatory environment is increasingly challenging and may present material obligations and risks to our business, including significantly expanded compliance burdens, costs and enforcement risks. For example, the European Union’s General Data Protection Regulation (“GDPR”), which became effective in May 2018, greatly increases the jurisdictional reach of EU law and adds a broad array of requirements related to personal data, including individual notice and opt-out preferences and the public disclosure of significant data breaches. Additionally, violations of the GDPR can result in fines of as much as 4% of a company’s annual revenue. Other governments have enacted or are enacting similar data protection laws, including data localization laws that require data to stay within their borders. Beginning in 2020, we will also be required to comply with certain additional requirements under the California Consumer Privacy Act. All of these evolving compliance and operational requirements, as well as the uncertain interpretation and enforcement of laws, impose significant costs and regulatory risks that are likely to increase over time. Our failure to comply with these evolving regulations could expose us to fines, penalties and other costs that could adversely impact our financial results.

If we are unable to comply with regulatory requirements and industry standards, including those regarding product safety, quality, efficacy and environmental impact, we could incur significant costs and suffer reputational harm which could adversely affect results of operations.

The development, manufacture and sale of our products are subject to various regulatory requirements in each of the countries in which our products are developed, manufactured and sold. In addition, we are subject to product safety and compliance requirements established by governments, industry or similar oversight bodies, or contractually by our customers, including requirements concerning product safety, quality and efficacy, environmental impacts (including packaging, energy and water use and waste management) and other sustainability or similar issues. We use a variety of strategies, methodologies and tools to minimize the likelihood of product or process non-compliance with these regulations and standards by (i) identifying current product standards, (ii) assessing relative risks in our supply chain, (iii) monitoring internal and external performance and (iv) testing raw materials and finished goods. As concerns regarding safety, quality and environmental impact become more pressing, we may see new, more restrictive regulations adopted that impact our products. For example, the European Chemicals Agency has proposed that the European Commission adopt a ban on microplastics, including those found in personal care items, detergents and cosmetics, to reduce plastics pollution. If this ban is adopted, we will be required to modify our products and/or innovate new solutions to replace microplastics in our products. If we are unable to adapt to these new regulations or standards in a cost effective and timely manner, we may lose business to competitors who are able to provide compliant products.

Gaps in our operational processes or those of our suppliers or distributors can result in products that do not meet our quality control or industry standards or fail to comply with the relevant regulatory requirements, which in turn can result in finished consumer goods that do not comply with applicable standards and requirements. Products that are mislabeled,

contaminated or damaged could result in a regulatory non-compliance event or even a product recall by the FDA or a similar foreign agency. Our contracts often require us to indemnify our customers for the costs associated with a product non-compliance event, including penalties, costs and settlements arising from litigation, remediation costs or loss of sales. As our flavors and fragrance compounds and ingredients are used in many products intended for human use or consumption, these consequences would be exacerbated if we or our customer did not identify the defect before the product reaches the consumer and there was a resulting impact at the consumer level. Such a result could lead to potentially large scale adverse publicity, negative effects on consumer's health, recalls and potential litigation, fines, penalties, sanctions or other regulatory actions. In addition, if we do not have adequate insurance or contractual indemnification from suppliers or other third parties, or if insurance or indemnification is not available, the liability relating to product or possible third-party claims arising from mislabeled, contaminated or damaged products could adversely affect our business, financial condition or results of operations. Furthermore, adverse publicity about our products, or our customers' products that contain our ingredients, including concerns about product safety or similar issues, whether real or perceived, could harm our reputation and result in an immediate adverse effect on our sales and customer relationships, as well as require us to utilize significant resources to rebuild our reputation.

Increasing awareness of health and wellness are driving changes in the consumer products industry, and if we are unable to react in a timely and cost-effective manner, our results of operations and future growth may be adversely affected.

We must continually anticipate and react, in a timely and cost-effective manner, to changes in consumer preferences and demands, including changes in demand driven by increasing awareness of health and wellness and demands for transparency or cleaner labels with respect to product ingredients by consumers and regulators. Consumers, especially in developed economies such as the U.S. and Western Europe, are rapidly shifting away from products containing artificial ingredients to all-natural, healthier alternatives. In addition, there has been a growing demand by consumers, non-governmental organizations and, to a lesser extent, governmental agencies to provide more transparency in product labeling and our customers have been taking steps to address this demand, including by voluntarily providing product-specific ingredients disclosure. These two trends could affect the types and volumes of our ingredients and compounds that our customers include in their consumer product offerings and, therefore, affect the demand for our products. If we are unable to react to or anticipate these trends in a timely and cost-effective manner, our results of operations and future growth may be adversely affected.

We are subject to increasing customer, consumer and regulatory focus on sustainability issues, which may result in additional costs in order to meet new requirements or upgrade Frutarom's sustainability practices

Federal, state, local and foreign governments, our customers and consumers are becoming increasingly sensitive to sustainability issues. We have committed to a sustainability strategy designed to meet this global trend and are currently assessing our combined environmental footprint following the Frutarom acquisition, with the intent of identifying synergies, gaps and opportunities in our sustainability efforts.

As part of our assessment so far, we have begun upgrading Frutarom's sustainability practices to better align them to our legacy IFF practices, and which may require significant costs and time to implement. Our assessment may reveal additional gaps between the legacy Frutarom operations and our sustainability practices and goals, which may require significant costs to remedy.

Despite our efforts, the increased focus on sustainability may result in new regulations and customer requirements that could negatively affect us. These could cause us to incur additional direct costs or to make changes to our operations in order to comply with any new regulations and customer requirements. We could also lose revenue if our customers divert business from us because we have not complied with their sustainability requirements or if we are not successful in improving Frutarom's sustainability metrics. These potential costs, changes and loss of revenue could have a material adverse effect on our business, results of operations and financial condition.

We have made investments in and continue to expand our business into emerging markets, which exposes us to certain risks.

As part of our growth strategy, we have increased our presence in emerging markets by expanding our manufacturing presence, sales organization and product offerings in these markets, and we expect to continue to expand our business in these markets. With our acquisition of Frutarom in 2018, who also had a significant presence in emerging markets, our business in these markets has meaningfully grown. In addition to the currency and international risks described below, our operations in these markets may be subject to a variety of other risks. Emerging markets typically have a consumer base with limited or fluctuating disposable income and customer demand in these markets may fluctuate accordingly. As a result, decrease in customer demand in emerging markets may have an adverse effect on our ability to execute our growth strategy.

Further, there is no assurance that our existing products, variants of our existing products or new products that we make, manufacture, distribute or sell will be accepted or be successful in any particular developing or emerging market, due to local or global competition, product price, cultural differences, consumer preferences or otherwise. In addition, emerging markets may have weak legal systems which may affect our ability to enforce our intellectual property and contractual rights, exchange controls, unstable governments and privatization or other government actions that may affect taxes, subsidies and incentive programs and the flow of goods and currency. In conducting our business, we move products from one country to another and may provide services in one country from a subsidiary located in another country. Accordingly, we are vulnerable to abrupt changes in trade, customs and tax regimes in these markets. If we are unable to expand our business in developing and emerging markets, effectively operate, or manage the risks associated with operating in these markets, or achieve the return on capital we expect from our investments in these markets, our operating results and future growth could be adversely affected.

The impact of currency fluctuation or devaluation in the international markets in which we operate may negatively affect our results of operations.

We have significant operations outside the U.S., the results of which are reported in the local currency and then translated into U.S. dollars at applicable exchange rates for inclusion in our consolidated financial statements. The exchange rates between these currencies and the U.S. dollar have fluctuated and will continue to do so in the future. For example, as of July 1, 2018, we concluded that Argentina's economy is highly inflationary under US GAAP, as it has experienced cumulative inflation of approximately 100% or more over a three-year period. While our current operations in Argentina represent less than 3% of our consolidated net sales and less than 1% of our consolidated total assets, continuing inflation in Argentina could adversely affect our profitability in a specific period. Changes in exchange rates between these local currencies and the U.S. dollar will affect the recorded levels of sales, profitability, assets and/or liabilities. Additionally, volatility in currency exchange rates may adversely impact our financial condition, cash flows or liquidity. Although we employ a variety of techniques to mitigate the impact of exchange rate fluctuations, including sourcing strategies and a limited number of foreign currency hedging activities, we cannot guarantee that such hedging and risk management strategies will be effective, and our results of operations could be adversely affected.

Our international operations are subject to regulatory, political and other risks that could materially and adversely affect our results of operations.

We operate on a global basis, with manufacturing and sales facilities in the U.S., Europe, Africa, the Middle East, Latin America, and Greater Asia. During 2019, 80% of our combined net sales were to customers outside the U.S. and we intend to continue expansion of our international operations. As a result, our business is increasingly exposed to risks inherent in international operations. These risks, which can vary substantially by location, include the following:

- governmental laws, regulations and policies adopted to manage national economic and macroeconomic conditions, such as increases in taxes, austerity measures that may impact consumer spending, monetary policies that may impact inflation rates, employment regulations, currency fluctuations or controls and sustainability of resources;
- changes in environmental, health and safety regulations, such as the continued implementation of the European Union's REACH regulations and similar regulations that are being evaluated and adopted in other markets, and the burdens and costs of our compliance with such regulations which may differ significantly across jurisdictions;
- increased environmental, health and safety regulations or the loss of necessary environmental permits in certain countries;
- the imposition of or changes in customs, tariffs, quotas, trade barriers, other trade protection measures, import or export licensing requirements, and sanctions on trade with certain countries, imposed by the U.S. or other countries, which could adversely affect our cost or ability to import raw materials or export our flavors and fragrance products to surrounding markets;
- risks and costs arising from our ability to cater to local demand and customer preferences, language and cultural differences;
- changes in the laws and policies that govern foreign investment in the countries in which we operate, including the risk of expropriation or nationalization, the costs and ability to repatriate the profit that we generate in these countries;
- risks and costs associated with complying with anti-money laundering and counter-terrorism financing laws;
- risks and costs associated with political and economic instability, bribery and corruption, anti-American sentiment, and social and ethnic unrest in the countries in which we operate;

- difficulty in recruiting and retaining trained local personnel;
- natural disasters, global or local health crisis (such as the recent coronavirus outbreak), pandemics, epidemics or international conflicts, including terrorist acts, political crisis, national and regional labor strikes in the countries in which we operate, which could endanger our personnel, interrupt our operations or adversely affect the demand for our products, the results of certain regions or our global supply chain; or
- the risks of operating in developing or emerging markets in which there are significant uncertainties regarding the interpretation, application and enforceability of laws and regulations and the enforceability of contract rights and intellectual property rights.

The occurrence of any one or more of these factors could increase our costs and adversely affect our results of operations.

Economic uncertainty may adversely affect demand for our products which may have a negative impact on our operating results and future growth.

Our flavors and fragrance compounds and our fragrance, cosmetic active and functional food ingredients are components of a wide assortment of global consumer products throughout the world. Historically, demand for consumer products using these compounds and ingredients was stimulated and broadened by changing social habits and consumer needs, population growth, an expanding global middle-class and general economic growth, especially in emerging markets. The global economy has experienced significant recessionary pressures and declines in consumer confidence and economic growth. While some segments of the global economy appear to be recovering, the predictions surrounding the global recessionary economic environment in Europe has, and may in the near future, increase unemployment and underemployment, decrease salaries and wage rates, increase inflation or result in other market-wide cost pressures that will adversely affect demand for consumer products in both developed and emerging markets. In addition, growth rates in the emerging markets have moderated from previous levels. Reduced consumer spending may cause changes in our customer orders including reduced demand for our flavors and fragrances compounds or ingredients, or order cancellations. The timing of placing of orders and the amounts of these orders are generally at our customers' discretion. Customers may cancel, reduce or postpone orders with us on relatively short notice. Significant cancellations, reductions or delays in orders by customers could affect our quarterly results. It is currently anticipated that these challenging economic uncertainties will continue to affect certain of our markets during 2020 which could adversely affect our sales, profitability and overall operating results.

Failure to comply with environmental protection laws may cause us to close, relocate or operate one or more of our plants at reduced production levels, and expose us to civil or criminal liability, which could adversely affect our operating results and future growth.

Our business operations and properties procure, make use of, manufacture, sell, and distribute substances that are sometimes considered hazardous and are therefore subject to extensive and increasingly stringent federal, state, local and foreign laws and regulations pertaining to protection of the environment, including air emissions, sewage discharges, the use of hazardous materials, waste disposal practices and clean-up of existing environmental contamination. Failure to comply with these laws and regulations or any future changes to them may result in significant consequences to us, including the need to close or relocate one or more of our production facilities, administrative, civil and criminal penalties, fines, sanctions, litigation, costly remediation measures, liability for damages and negative publicity. If we are unable to meet production requirements, we can lose customer orders, which can adversely affect our future growth or we may be required to make incremental capital investments to ensure supply. For example, we recently completed negotiations with the Chinese government concerning the relocation of a second Fragrance facility in China. Idling of facilities or production modifications has caused or may cause customers to seek alternate suppliers due to concerns regarding supply interruptions and these customers may not return or may order at reduced levels even once issues are remediated. If these non-compliance issues reoccur in China or occur in any other jurisdiction, we may lose business and may be required to incur capital spending above previous expectations, close a plant, or operate a plant at significantly reduced production levels on a permanent basis, and our operating results and cash flows from operations may be adversely affected.

Our performance may be adversely impacted if we are not successful in managing our inventory and/or working capital balances.

We evaluate our inventory balances of materials based on shelf life, expected sourcing levels, known uses and anticipated demand based on forecasted customer order activity and changes in our product/sales mix. Efficient inventory management is a key component of our business success, financial returns and profitability. To be successful, we must maintain sufficient inventory levels and an appropriate product/sales mix to meet our customers' demands, without allowing those levels to increase to such an extent that the costs associated with storing and holding other inventory adversely impact our financial results. If our buying decisions do not accurately predict sourcing levels, customer trends or our expectations about customer

needs are inaccurate, we may have to take unanticipated markdowns or impairment charges to dispose of the excess or obsolete inventory, which can adversely impact our financial results. Additionally, we believe excess inventory levels of raw materials with a short shelf life in our manufacturing facilities subjects us to the risk of increased inventory shrinkage. If we are not successful in managing our inventory balances and shrinkage, our results of and cash flows from operations may be negatively affected.

We sell certain accounts receivable on a non-recourse basis to unrelated financial institutions under “factoring” agreements that are sponsored, solely and individually, by certain customers. The cost of participating in these programs was immaterial to our results in all periods. Should we choose not to participate, or if these programs were no longer available, it could reduce our cash flows from operations in the period in which the arrangement ends.

We could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act or similar U.S. or foreign anti-bribery and anti-corruption laws and regulations in the jurisdictions in which we operate.

The global nature of our business, the significance of our international revenue and our focus on emerging markets create various domestic and local regulatory challenges and subject us to risks associated with our international operations. The U.S. Foreign Corrupt Practices Act, or FCPA, and similar anti-bribery and anti-corruption laws and regulations in other countries generally prohibit companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or keeping business or for other commercial advantage. In addition, U.S. public companies are required to maintain records that accurately and fairly represent their transactions and have an adequate system of internal accounting controls. Under the FCPA, U.S. companies may be held liable for the corrupt actions taken by directors, officers, employees, agents, or other strategic or local partners or representatives. As such, if we or our intermediaries fail to comply with the requirements of the FCPA or similar legislation, governmental authorities in the U.S. and elsewhere could seek to impose substantial civil and/or criminal fines and penalties which could have a material adverse effect on our business, reputation, operating results and financial condition.

We operate or may pursue opportunities in some jurisdictions, such as China, India, Brazil, Russia and Africa, that pose potentially elevated risks of fraud or corruption or increased risk of internal control issues. In certain jurisdictions, compliance with anti-bribery laws may conflict with local customs and practices. From time to time, we have conducted and will conduct internal investigations of the relevant facts and circumstances, control testing and compliance reviews, and take remedial actions, when appropriate, to help ensure that we are in compliance with applicable corruption and similar laws and regulations. For example, in August 2019, during the integration of Frutarom, we were made aware of allegations that two Frutarom businesses operating principally in Russia and Ukraine made certain improper payments, including to representatives of a number of customers. Our investigation substantiated the allegations that improper payments to representatives of customers were made and that key members of Frutarom’s senior management at the time were aware of such payments. We did not uncover any evidence suggesting that such payments had any connection to the U.S. In addition, Frutarom grew through rapid acquisition and, as part of our integration efforts, we are implementing our anti-corruption and similar policies throughout a number of those acquired companies, many of which were not previously subject to these U.S. laws.

Detecting, investigating and resolving actual or alleged violations of the FCPA or other anti-bribery and anti-corruption laws and regulations is expensive, could consume significant time and attention of our senior management and could subject us to investigations and inquiries by governmental and other regulatory bodies. Any allegations of non-compliance with such laws and regulations could have a disruptive effect on our operations in such jurisdiction, including interruptions of business or loss of third-party relationships, which may negatively impact our results of operations or financial condition. Any determination that our operations or activities are not in compliance with such laws and regulations could expose us to severe criminal or civil penalties or other sanctions, significant fines, termination of necessary licenses and permits, and penalties or other sanctions that may harm our business and reputation.

Any impairment of our tangible or intangible long-lived assets, including goodwill, may adversely impact our profitability.

A significant portion of our assets consists of long-lived assets, including tangible assets such as our manufacturing facilities, and intangible assets, including goodwill. As a result of numerous recent acquisitions, including the 2018 acquisition of Frutarom, as of December 31, 2019, we had recorded approximately \$8.3 billion of intangible assets and goodwill, including \$4.3 billion of goodwill associated with the acquisition of Frutarom. Our results of operations and financial position in future periods could be negatively impacted should future impairments of our long-lived assets, including intangible assets or goodwill occur.

At least annually, we assess both goodwill and indefinite-lived intangible assets for impairment. We test for impairment by comparing the estimated fair value of a reporting unit with its carrying amount. If the carrying amount of a reporting unit

exceeds its estimated fair value, we record an impairment charge based on the difference of the two. Intangible assets with finite lives are also tested for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Such events and changes in circumstances could include a sustained decrease in our market capitalization, increased competition or unexpected loss of market share, increased input costs beyond projections (for example due to regulatory or industry changes), our inability to recognize the anticipated benefits of acquisitions, unexpected business disruptions (for example due to a natural disaster or loss of a customer, supplier, or other significant business relationship), acts by governments and courts, operating results falling short of projections, or significant adverse changes in the markets in which we operate.

Fair value determinations require considerable judgment and are sensitive to changes in underlying assumptions, estimates and market factors. Estimating the fair value of reporting units requires us to make assumptions and estimates regarding our business performance, future plans, future annual net cash flows, income tax considerations, discount rates, growth rates, and based on industry, economic, regulatory conditions and other market factors. To the extent any of our acquisitions, including the acquisition of Frutarom, do not perform as anticipated and our underlying assumptions and estimates related to their fair value determination are not met, whether due to internal or external factors, the value of such assets may be negatively affected and we may be required to record impairment charges.

Our ability to compete effectively depends on our ability to protect our intellectual property rights.

We rely on patents and trade secrets to protect our intellectual property rights. We often rely on trade secrets to protect our proprietary fragrance and flavor formulations, as well as our extract methodologies, and processes for our nutrition, natural colors for food and natural antioxidants for food protection, as this does not require us to publicly file information regarding our intellectual property. From time to time, a third party may claim that we have infringed upon or misappropriated their intellectual property rights, or a third party may infringe upon or misappropriate our intellectual property rights. We could incur significant costs in connection with legal actions to assert our intellectual property rights against third parties or to defend ourselves from third-party assertions of invalidity, infringement, misappropriation or other claims. Any settlement or adverse judgment resulting from such litigation could require us to obtain a license to continue to use the intellectual property rights that are the subject of the claim, or otherwise restrict or prohibit our use of such intellectual property rights. Any required licensing fees may not be available to us on acceptable terms, if at all. For those intellectual property rights that are protected as trade secrets, this litigation could result in even higher costs, and potentially the loss of certain rights, since we would not have a perfected intellectual property right that precludes others from making, using or selling our products or processes. The ongoing trend among our customers towards more transparent labeling could further diminish our ability to effectively protect our proprietary flavor formulations.

For intellectual property rights that we seek to protect through patents, we cannot be certain that these rights, if obtained, will not later be opposed, invalidated, or circumvented. In addition, even if such rights are obtained in the U.S., the laws of some of the other countries in which our products are or may be sold do not protect intellectual property rights to the same extent as the laws of the US. If other parties were to infringe on our intellectual property rights, or if a third party successfully asserted that we had infringed on their intellectual property rights, it could materially and adversely affect our future results of operations by, among other things, (i) reducing the price that we could obtain in the marketplace for products which are based on such rights, (ii) increasing the royalty or other fees that we may be required to pay in connection with such rights, (iii) limiting the volume, if any, of such products that we can sell or (iv) resulting in significant litigation costs and potential liability.

Our results of operations may be negatively impacted by the outcome of uncertainties related to litigation.

From time to time we are involved in a number of legal claims, regulatory investigations and litigation, including claims related to intellectual property, product liability, environmental matters and indirect taxes. For instance, product liability claims may arise due to the fact that we supply flavors and fragrances to the food and beverage, functional food, pharma/nutraceutical and personal care industries. Our manufacturing and other facilities may expose us to environmental claims and regulatory investigations. In addition, as we expand our product offering into functional food, nutraceuticals, and natural antioxidants, we may also be subject to claims of false or deceptive advertising claims in the U.S., Europe and other foreign jurisdictions in which we offer these types of products. These claims can arise as a result of function claims, health claims, nutrient content claims and other claims that impermissibly suggest therapeutic benefits for certain foods or food components. The cost of defending these claims or our obligations for direct damages and indemnification if we were found liable could adversely affect our results of operations.

As a result of the acquisition of Frutarom, we assumed a number of legal claims, regulatory investigations and litigation and we may become involved in additional actions in the future arising from the acquired operations. Specifically, as Frutarom has a significantly greater number of facilities that are located globally and a significantly larger number of customers, our

exposure to these types of environmental claims, product liability claims and regulatory investigations may increase. This could result in an increase in our cost for defense or settlement of claims or indemnification obligations if we were to be found liable in excess of our historical experience.

In addition, we are also the subject of a putative shareholder class action lawsuit filed in August 2019 after we disclosed that preliminary results of investigations indicated that Frutarom businesses operating principally in Russia and Ukraine had made improper payments to representatives of customers.

Our insurance may not be adequate to protect us from all material expenses related to pending and future claims and our current levels of insurance may not be available in the future at commercially reasonable prices. Any of these factors could adversely affect our profitability and results of operations.

Our funding obligations for our pension and postretirement plans could adversely affect our earnings and cash flows.

The funding obligations for our pension plans are impacted by the performance of the financial markets, particularly the equity markets and interest rates. Funding obligations are determined under government regulations and are measured each year based on the value of assets and liabilities on a specific date. If the financial markets do not provide the long-term returns that are expected under the governmental funding calculations, we could be required to make larger contributions. The equity markets can be very volatile, and therefore our estimate of future contribution requirements can change dramatically in relatively short periods of time. Similarly, changes in interest rates and legislation enacted by governmental authorities can impact the timing and amounts of contribution requirements. An adverse change in the funded status of the plans could significantly increase our required contributions in the future and adversely impact our liquidity.

Assumptions used in determining projected benefit obligations and the fair value of plan assets for our pension and other postretirement benefit plans are determined by us in consultation with outside consultants and advisors. In the event that we determine that changes are warranted in the assumptions used, such as the discount rate, expected long-term rate of return on assets, or expected health care costs, our future pension and postretirement benefit expenses could increase or decrease. Due to changing market conditions or changes in the participant population, the assumptions that we use may differ from actual results, which could have a significant impact on our pension and postretirement liabilities and related costs and funding requirements.

Changes in our tax rates, the adoption of new U.S. or international tax legislation, or changes in existing tax laws could expose us to additional tax liabilities that may affect our future results.

We are subject to taxes in the U.S. and numerous foreign jurisdictions. Our future effective tax rates could be affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in liabilities for uncertain tax positions, cost of repatriations or changes in tax laws or their interpretation. Any of these changes could have a material adverse effect on our profitability.

We have and will continue to implement transfer pricing policies among our various operations located in different countries. These transfer pricing policies are a significant component of the management and compliance of our operations across international boundaries and overall financial results. Many countries routinely examine transfer pricing policies of taxpayers subject to their jurisdiction, challenge transfer pricing policies aggressively where there is potential non-compliance and impose significant interest charges and penalties where non-compliance is determined. However, governmental authorities could challenge these policies more aggressively in the future and, if challenged, we may not prevail. We could suffer significant costs related to one or more challenges to our transfer pricing policies.

We are subject to the continual examination of our income tax returns by the Internal Revenue Service and foreign tax authorities in those countries in which we operate, and we may be subject to assessments or audits in the future in any of the countries in which we operate. The final determination of tax audits and any related litigation could be materially different from our historical income tax provisions and accruals, and while we do not believe the results that follow would have a material adverse effect on our financial condition, such results could have a material effect on our income tax provision, net income or cash flows in the period or periods in which that determination is made.

In addition, a number of international legislative and regulatory bodies have proposed legislation and begun investigations of the tax practices of multinational companies and, in the European Union, the tax policies of certain European Union member states. One of these efforts has been led by the Organisation for Economic Co-operation and Development, an international association of 34 countries including the U.S., which has finalized recommendations to revise corporate tax, transfer pricing, and tax treaty provisions in member countries. Since 2013, the European Commission (“EC”) has been investigating tax rulings granted by tax authorities in a number of European Union member states with respect to specific

multi-national corporations to determine whether such rulings comply with European Union rules on state aid, as well as more recent investigations of the tax regimes of certain European Union member states. Under European Union law, selective tax advantages for particular taxpayers that are not sufficiently grounded in economic realities may constitute impermissible state aid. If the EC determines that a tax ruling or tax regime violates the state aid restrictions, the tax authorities of the affected European Union member state may be required to collect back taxes for the period of time covered by the ruling. In late 2015 and early 2016, the EC declared that tax rulings, related to other companies, by tax authorities in Luxembourg, the Netherlands and Belgium did not comply with the European Union state aid restrictions. If the EC or tax authorities in other jurisdictions were to successfully challenge tax rulings applicable to us in any of the member states in which we are subject to taxation or our internal intercompany arrangements, we could be exposed to increased tax liabilities.

In December 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Tax Act”) that significantly revised the U.S. tax code effective January 1, 2018 by, among other things, lowering the corporate income tax rate from a top marginal rate of 35% to a flat 21%, limiting deductibility of interest expense and performance based incentive compensation, transitioning to a territorial system and creating new taxes associated with global operations. The Tax Act impacted our consolidated results of operations during 2019 and is expected to continue to impact our consolidated results of operations in future periods. In future periods, we expect that our effective tax rate will be impacted by the lower U.S. corporate tax rate that will initially be offset by the elimination of the deductibility of performance-based incentive compensation, and other provisions of the Tax Act that may impact us prospectively. However, the ultimate impact of the Tax Act will depend on additional regulatory or accounting guidance that may be issued with respect to the Tax Act and any operating and structural changes that we may undertake to permit us to benefit from the new, lower U.S. tax rate prospectively. This could adversely affect our results of operations.

Our business may be negatively impacted as a result of the United Kingdom’s departure from the European Union.

We currently manufacture goods in the United Kingdom for distribution in the European Union and vice-versa and therefore may be adversely affected as a result of the United Kingdom’s departure from the European Union (“Brexit”) in 2020. The impact of the withdrawal could, among other outcomes, exacerbate the disruption of the free movement of goods, services and people between the United Kingdom and the European Union, undermine bilateral cooperation in key geographic areas and significantly disrupt trade between the United Kingdom and the European Union or other nations as the United Kingdom pursues independent trade relations. In addition, Brexit has caused legal uncertainty, which could last indefinitely, and may potentially create divergent national laws and regulations as the United Kingdom determines which European Union laws to replace or replicate. Given the lack of comparable precedent, it is unclear what the financial, trade and legal implications of the withdrawal of the United Kingdom from the European Union will be and how the withdrawal will affect us. Adverse consequences concerning Brexit or the European Union could include deterioration in global economic conditions, instability in global financial markets, political uncertainty, volatility in currency exchange rates, or adverse changes in the cross-border agreements currently in place, any of which could have an adverse impact on our financial results in the future.

The expected phase out of the London Interbank Office Rate (LIBOR) could impact the interest rates paid on our variable rate indebtedness and cause our interest expense to increase.

In 2017, the United Kingdom’s Financial Conduct Authority, which regulates LIBOR, announced that it intends to phase out LIBOR by the end of 2021. Currently there is no definitive information regarding the future utilization of LIBOR or of any particular replacement rate. Borrowings under our revolving credit facility and term loan are at variable interest rates based on LIBOR. If LIBOR is no longer available, or if our lenders have increased costs due to changes in LIBOR, we may need to amend our debt facilities to replace LIBOR with an agreed upon replacement index, which could result in higher rates and adversely impact our interest expense

Risks Relating to Our Pending Combination with Nutrition and Biosciences, Inc. (“N&B”)

As previously announced, on December 15, 2019, we entered into, among other agreements, an agreement and plan of merger (the “Merger Agreement”) with DuPont, pursuant to which, subject to closing conditions customary for a transaction of this type, we will combine with DuPont’s nutrition and biosciences business (the “N&B Business”). Upon completion of our combination with the N&B Business (the “N&B Transaction”), DuPont shareholders will own approximately 55.4% of the shares of IFF, and existing IFF shareholders will own approximately 44.6% of the shares of IFF. A proxy statement/prospectus on Form S-4 is expected to be filed with the SEC pursuant to which IFF shareholders will be asked to approve the share issuance required to effect the N&B Transaction.

We will be subject to business uncertainties and contractual restrictions while the N&B Transaction is pending that may have a negative impact on our business.

Uncertainty about the effect of the pending N&B Transaction may have a negative impact on our business, including relationships with our customers, suppliers and employees. These uncertainties may impair our ability to retain and motivate key personnel and could cause customers and others that deal with us to defer or decline entering into contracts with us or making other decisions concerning us or seek to change existing business relationships with us. In addition, if key employees depart because of uncertainty about their future roles and the potential complexities of the transaction, our business could be harmed. Furthermore, the Merger Agreement contains restrictions on our ability to take certain actions outside the ordinary course of business prior to the closing of the transaction, which may delay or prevent us from undertaking certain actions or business opportunities that may arise prior to the closing. For more information, see the Merger Agreement incorporated by reference as an exhibit in this Annual Report on Form 10-K.

We have incurred, and will incur, substantial direct and indirect costs as well as additional debt as a result of the N&B Transaction.

We have incurred, and will incur, substantial expenses in connection with and as a result of completing the N&B Transaction, including financial advisory, legal, accounting, consulting and other advisory fees and expenses, regulatory filings and filing and printing fees, as well as additional debt, thereby significantly increasing our leverage. Our leverage and required payments may adversely affect our credit rating, cash flows, operating results or our ability to return capital to our shareholders and the additional debt instruments may subject us to additional covenants.

In addition, over a period of time following the closing, we expect to incur substantial expenses in connection with transitioning, integrating and coordinating the businesses, operations, policies and procedures of us and the N&B Business. A portion of the transaction costs related to the transaction will be incurred regardless of whether the transaction is completed. While we have assumed that a certain level of transaction expenses will be incurred, factors beyond our control could affect the total amount or the timing of these expenses. Many of the expenses that will be incurred, by their nature, are difficult to estimate accurately. These costs could adversely affect our financial condition and results of operations prior to the transaction and of the combined businesses following the transaction.

The Merger Agreement limits our ability to pursue alternatives to the N&B Transaction.

The Merger Agreement contains provisions that make it more difficult for us to enter into alternative transactions and provisions that restrict our ability to, among other things, solicit, initiate or knowingly facilitate or encourage the submission of inquiries regarding, or the making of any proposal or offer that constitutes, or would reasonably be expected to lead to, an acquisition proposal from a third party. While we believe these provisions are reasonable and customary for transactions of this type, the provisions might discourage a third party that has an interest in acquiring all or a significant part of us from considering or proposing such acquisition, even if such party were prepared to pay consideration with a higher per-share value than the currently proposed transaction consideration.

The requirement to obtain governmental approvals to satisfy the conditions to the completion of the N&B Transaction may delay or prevent completion of the transaction.

The completion of the N&B Transaction is conditioned upon the receipt of certain governmental authorizations, consents, orders or other approvals, including the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended. IFF and DuPont intend to pursue all required approvals in accordance with the Merger Agreement. These approvals may impose conditions on or require divestitures relating to the operations or assets of IFF or the N&B Business, and such conditions or divestitures may jeopardize or delay the completion of the transaction or may reduce the anticipated benefits of the transaction. Further, no assurance can be given that the required approvals will be obtained and, even if all such approvals are obtained, no assurance can be given as to the terms, conditions and timing of the approvals or whether they will satisfy the terms of the Merger Agreement.

If we fail to complete the N&B Transaction, our business, financial results and stock price could be negatively impacted.

The closing of the N&B Transaction is subject to numerous conditions. If the N&B Transaction is not completed, our ongoing business may be adversely affected and we will be subject to several risks and consequences, including the following:

- we may be required, under certain circumstances, to pay a termination fee of \$521.5 million or to reimburse DuPont's transaction-related expenses in an amount up to \$75 million;
- we will be required to pay certain costs relating to the transaction, whether or not the transaction is completed, such as significant fees and expenses relating to financial advisory, legal, accounting, consulting and other advisory fees and expenses, regulatory filings and filing and printing fees; and

- matters relating to the transaction may require substantial commitments of time and resources by our management and the expenditure of significant funds in the form of fees and expenses, which could otherwise have been devoted to day-to-day operations and other opportunities that may have been beneficial to us.

In addition, if the N&B Transaction is not completed, we may experience negative reactions from the financial markets and from our employees, clients and customers. We could also be subject to litigation, including litigation related to failure to complete the transaction or to enforce our obligations under the Merger Agreement. If the N&B Transaction is not consummated, there can be no assurance that the risks described above will not materially affect our business, financial results and stock price.

The integration of the N&B Business with IFF may present significant challenges, and we may not realize anticipated synergies and other benefits of the N&B Transaction.

The combination of independent businesses is complex, costly and time-consuming, and combining our and the N&B Business' practices and operations may divert significant management attention and resources and disrupt our business. The failure to meet the challenges involved in integrating the businesses and to realize the anticipated benefits of the transaction could cause an interruption of, or a loss of momentum in, our business activities and could adversely affect our results of operations. The overall combination of our business and the N&B Business may also result in material unanticipated problems, expenses, liabilities, competitive responses, and loss of customer and other business relationships. The difficulties of integration include, among others:

- the diversion of management attention to integration matters;
- integrating operations and systems, including intellectual property and communications systems, administrative and information technology infrastructure and financial reporting and internal control systems, some of which may prove to be incompatible;
- conforming standards, controls, procedures and accounting and other policies, business cultures and compensation structures between the businesses;
- integrating employees and attracting and retaining key personnel, including talent;
- retaining existing, and obtaining new customers and suppliers;
- managing the expanded operations of a significantly larger and more complex company;
- contingent liabilities that are larger than expected; and
- potential unknown liabilities, adverse consequences and unforeseen increased expenses associated with the transaction.

Many of these factors are outside of our control and/or will be outside the control of the N&B Business, and any one of them could result in lower revenues, higher costs and diversion of management time and energy, which could materially impact the business, financial condition and results of operations of our business.

In addition, even if the operations of our business and the N&B Business are integrated successfully, the full benefits of the transaction may not be realized, including, among others, the synergies, cost savings or sales or growth opportunities that are expected. These benefits may not be achieved within the anticipated time frame or at all. Further, additional unanticipated costs may be incurred in the integration of our business and the N&B Business. All of these factors could cause dilution to the earnings per share of IFF, decrease or delay the projected accretive effect of the transaction, and negatively impact the price of IFF common stock following the transaction.

Current IFF shareholders' percentage ownership interest in IFF will be substantially diluted in the N&B Transaction.

The IFF common stock outstanding on a fully-diluted basis immediately prior to the N&B Transaction will represent, in the aggregate, approximately 44.6% of IFF common stock outstanding on a fully-diluted basis immediately following the transaction. Consequently, IFF's pre-transaction equity holders, as a group, will be substantially diluted in the transaction and have less ability to exercise influence over the management and policies of IFF following the transaction.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES.

Our principal properties are as follows:

<u>Location</u>	<u>Operation</u>
United States	
Carrollton, TX ⁽¹⁾	Production of flavor compounds; flavor laboratories.
Hazlet, NJ	Production of fragrance compounds.
Jacksonville, FL	Production of fragrance ingredients.
New York, NY ⁽¹⁾	Fragrance laboratories; corporate headquarters.
South Brunswick, NJ ⁽¹⁾	Production of flavor compounds and ingredients; flavor laboratories.
Union Beach, NJ	Research and development center.
Holmdel, NJ ⁽¹⁾	Research and development center.
Philadelphia, PA	Production of flavor compounds; flavor laboratories.
France	
Neuilly ⁽¹⁾	Fragrance laboratories.
Grasse	Production of fragrance compounds, and cosmetic ingredients.
Great Britain	
Haverhill	Production of flavor compounds and ingredients, and fragrance ingredients; flavor laboratories.
Netherlands	
Hilversum	Flavor and fragrance laboratories.
Tilburg	Production of flavor compounds and ingredients, and fragrance compounds.
Spain	
Benicarló	Production of fragrance ingredients.
Argentina	
Garin	Production of flavor and fragrance compounds; flavor and fragrance laboratories.
Brazil	
Rio de Janeiro	Production of fragrance compounds.
Taubate	Production of flavor compounds and ingredients.
Minas Gerias ⁽¹⁾	Production of taste solutions.
Mexico	
Tlalnepantla	Production of flavor and fragrance compounds; flavor and fragrance laboratories.
India	
Mumbai ⁽²⁾	Flavor and fragrance laboratories.
Chennai ⁽²⁾	Production of flavor compounds and ingredients, and fragrance compounds; flavor laboratories.
Australia	
Dandenong	Production of flavor compounds and flavor ingredients.
China	
Guangzhou ⁽²⁾	Production of fragrance compounds.
Shanghai ⁽¹⁾⁽²⁾	Flavor and fragrance laboratories.
Zhangjiagang ⁽²⁾	Production of flavor compounds.
Jiande ⁽²⁾	Production of fragrance ingredients.
Yungpu ⁽²⁾	Production of flavor compounds.
Indonesia	
Jakarta	Production of flavor compounds and ingredients; flavor and fragrance laboratories.

Location	Operation
Thailand	
Bangkok ⁽¹⁾	Production of savory solutions.
Japan	
Gotemba	Production of flavor compounds.
Singapore	
Jurong ⁽¹⁾	Production of flavor and fragrance compounds.
Science Park ⁽¹⁾	Flavor and fragrance laboratories.
Turkey	
Gebze ⁽¹⁾	Production of flavor compounds.
Slovenia	
Skofja ⁽¹⁾	Production of flavor, food systems and savory powders.
Israel	
Kibbutz Givat-Oz ⁽¹⁾⁽³⁾	Production of fragrance ingredients.
Migdal H'aameq ⁽¹⁾	Production of health products.
Haifa ⁽¹⁾	Production of flavor compounds.
Russia	
Moscow ⁽¹⁾	Production of savory solutions.
Germany	
Hamburg ⁽¹⁾	Production of fragrance compounds.
Stadthagen	Production of health products.
Emmerich	Production of food systems.
Sittensen	Production of savory solutions.
Freilassing	Production of savory solutions.

(1) Leased.

(2) Land is leased and building, machinery and equipment are owned.

(3) We have a 93.4% interest in the subsidiary company that owns this facility.

Our principal executive offices and New York laboratory facilities are located at 521 West 57th Street, New York City.

ITEM 3. LEGAL PROCEEDINGS.

We are subject to various claims and legal actions in the ordinary course of our business.

Investigations

IFF's investigation of allegations that improper payments to representatives of customers were made in Russia and Ukraine has been completed. Such allegations were substantiated, and IFF has confirmed that key members of Frutarom's senior management at the time were aware of such payments. IFF has taken appropriate remedial actions, including replacing senior management in relevant locations, and believes that such improper customer payments have stopped.

IFF has confirmed in these investigations that total affected sales represented less than 1% of the Company's consolidated net sales for 2019. The impact of the reviews, including the costs associated with them, were not material to IFF's results of operations or financial condition. In addition, no evidence was uncovered suggesting that any of these compliance matters had any connection to the United States.

In addition to IFF's standard compliance integration activities, IFF has also conducted a robust secondary review of Frutarom's operations in certain other jurisdictions, including those that it deems "high risk". These reviews supplement IFF's existing global compliance initiatives that were implemented at Frutarom in connection with the closing of the Frutarom transaction. These secondary reviews were conducted with the assistance of outside legal and accounting firms. These reviews are complete.

IFF is committed to the highest standards of ethics and integrity and has strict compliance policies in place that are regularly reviewed and updated.

Litigation Matters

On August 12, 2019, Marc Jansen filed a putative securities class action against IFF, its Chairman and CEO, and its CFO, in the United States District Court for the Southern District of New York. The lawsuit, which was filed after IFF disclosed that preliminary results of investigations indicated that Frutarom businesses operating principally in Russia and Ukraine had made improper payments to representatives of customers, alleges that defendants made materially false and misleading statements or omissions concerning IFF's acquisition of Frutarom, the integration of the two companies, and IFF's financial reporting and results. The lawsuit brings claims under Section 10(b) of the Securities Exchange Act of 1934 and SEC Rule 10b-5 against all defendants, and under Section 20(a) of the Securities Exchange Act of 1934 against the individual defendants, and was filed on behalf of a putative class of persons and entities who purchased or otherwise acquired IFF securities between May 7, 2018 and August 5, 2019. The complaint seeks an award of unspecified compensatory damages, costs, and expenses. On December 26, 2019, the Court appointed a group of six investment funds as lead plaintiff and Pomerantz LLP as lead counsel.

Two motions to approve securities class actions were filed in the Tel Aviv District Court, Israel in August 2019, similarly alleging, among other things, false and misleading statements largely in connection with IFF's acquisition of Frutarom and the above-mentioned improper payments. Both assert claims under the U.S. federal securities laws against IFF, its Chairman and CEO, and its former CFO. One also asserts claims under the Israeli Securities Act-1968 against IFF, as well as against Frutarom and certain former Frutarom officers and directors, and asserts claims under the Israeli Companies Act-1999 against certain former Frutarom officers and directors.

On October 29, 2019, IFF and Frutarom filed a claim in the Tel Aviv District Court, Israel, against Ori Yehudai, the former President and CEO of Frutarom, and against certain former directors of Frutarom, challenging the bonus of US \$20 million granted to Yehudai in 2018. IFF and Frutarom allege, among other things, that Yehudai was not entitled to receive the bonus because he breached his fiduciary duty by, among other things, knowing of the above-mentioned improper payments and failing to prevent them from being made.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

PART II

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

Market Information.

Our common stock is principally traded on the New York Stock Exchange and available on the Tel Aviv Stock Exchange, both under the ticker symbol "IFF".

Approximate Number of Equity Security Holders.

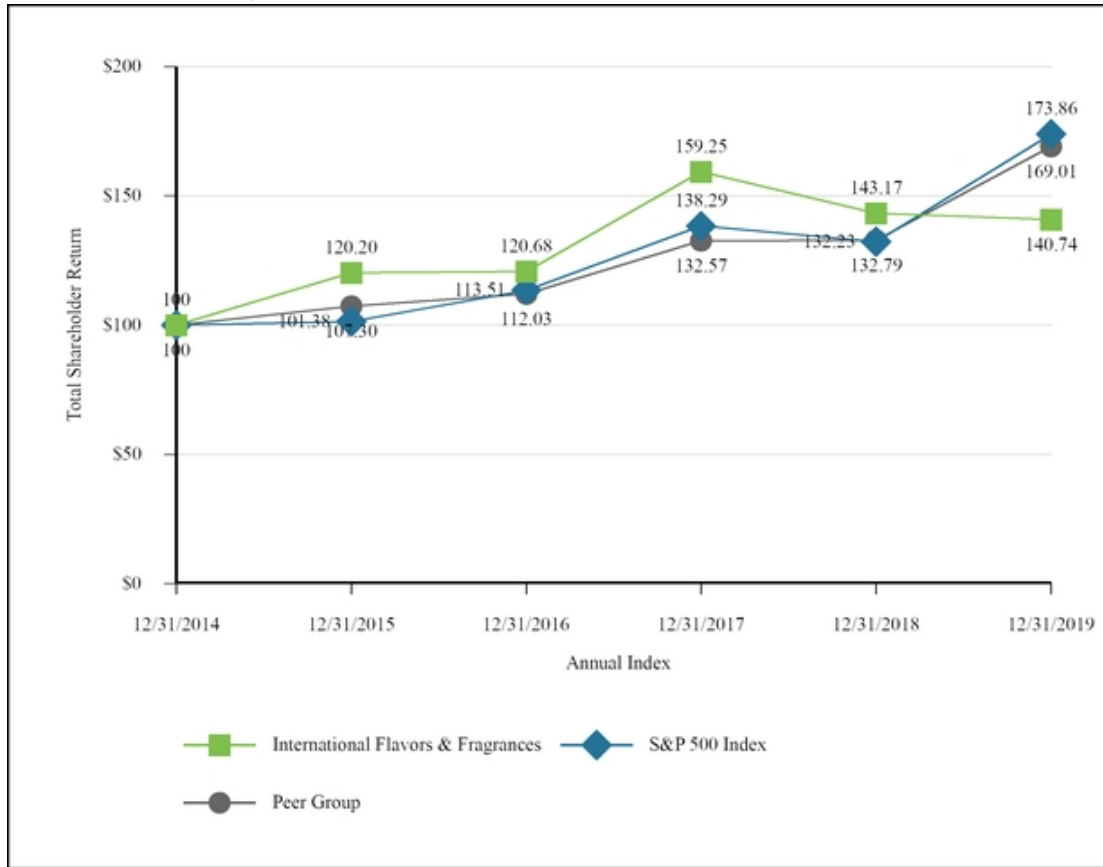
<u>Title of Class</u>	<u>Number of shareholders of record as of February 26, 2020</u>
Common stock, par value 12 1/2¢ per share	1,555

Issuer Purchases of Equity Securities.

None.

Performance Graph.

The following graph compares a shareholder’s cumulative total return for the last five fiscal years as if such amounts had been invested in: (i) our common stock; (ii) the stocks included in the S&P 500 Index; and (iii) a customized Peer Group. The graph is based on historical stock prices and measures total shareholder return, which takes into account both changes in stock price and dividends. The total return assumes that dividends were reinvested daily and is based on a \$100 investment on December 31, 2014.



SOURCE: S&P Capital IQ

Due to the international scope and breadth of our business, we believe that a Peer Group comprising international public companies, which are representative of the customer group to which we sell our products, is the most appropriate group against which to compare shareholder returns. See the table below for the list of companies included in our Peer Group.

Peer Group Companies

- | | |
|---|-----------------------------------|
| Avon Products, Inc. | Kellogg Company |
| Campbell Soup Company | The Estée Lauder Companies Inc. |
| Church & Dwight Co., Inc. | McCormick & Company, Incorporated |
| The Clorox Company | McDonald’s Corporation |
| The Coca-Cola Company | Nestle SA |
| Colgate-Palmolive Company | PepsiCo, Inc. |
| Conagra Brands, Inc. | The Procter & Gamble Company |
| Edgewell Personal Care Company ⁽¹⁾ | Revlon, Inc. |
| General Mills, Inc. | Sensient Technologies Corporation |
| The Hershey Company | Unilever N.V. |
| Hormel Foods Corporation | YUM! Brands, Inc. |

(1) Edgewell Personal Care has been included starting from July 1, 2015 when it spun off from Energizer Holdings.

ITEM 6. SELECTED FINANCIAL DATA.

**INTERNATIONAL FLAVORS & FRAGRANCES INC.
QUARTERLY FINANCIAL DATA
(UNAUDITED)**

The following selected consolidated financial data is derived from our Consolidated Financial Statements. This data should be read in conjunction with the Consolidated Financial Statements and Notes thereto, and with Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

	Fiscal Year Ended December 31, 2019				
<i>(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)</i>	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
Net Sales	\$ 1,297,402	\$ 1,291,568	\$ 1,267,345	\$ 1,283,769	\$ 5,140,084
Gross Profit ^(a)	531,259	546,239	533,088	502,162	2,112,748
Income before taxes	134,576	169,481	156,866	96,529	557,452
Net income	111,214	138,869	129,807	80,378	460,268
Net income attributable to IFF stockholders ^(b)	108,829	136,377	127,124	83,543	455,873
Net income per share — basic ^(d)	0.97	1.21	1.15	0.71	4.05
Net income per share — diluted ^(c)	0.96	1.20	1.13	0.70	4.00

	Fiscal Year Ended December 31, 2018				
<i>(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)</i>	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
Net Sales	\$ 930,928	\$ 920,016	\$ 907,548	\$ 1,219,047	\$ 3,977,539
Gross Profit ^(a)	405,809	398,717	400,666	477,515	1,682,707
Income before taxes	158,837	121,918	100,702	66,300	447,757
Net income	129,416	99,149	95,716	15,500	339,781
Net income attributable to IFF stockholders ^(b)	129,416	99,149	95,716	13,021	337,302
Net income per share — basic ^(d)	1.63	1.25	1.18	0.09	3.81
Net income per share — diluted ^{(c)(e)}	1.63	1.25	1.17	0.09	3.79

* See the following chart for (a)-(e) footnote explanations.

Included in the above quarterly results are the following:

<i>(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)</i>	Footnotes			Description
	Gross Profit (a)	Net Expense (Income) (b)	Diluted EPS (c)	
Q1 2019				
Integration Related Costs	\$ 156	\$ 11,548	\$ 0.10	Represents costs related to the integration of the Frutarom acquisition.
Restructuring and Other Charges, net	—	12,143	0.11	Represents severance costs related to restructuring programs.
Frutarom Acquisition Related Costs	7,850	7,999	0.07	Represents transaction-related costs and expenses related to the acquisition of Frutarom.
Q2 2019				
Integration Related Costs	165	8,843	0.08	Represents costs related to the integration of the Frutarom acquisition.
Restructuring and Other Charges, net	—	1,973	0.02	Represents severance costs related primarily to Frutarom.
Frutarom Acquisition Related Costs	—	(1,290)	(0.01)	Represents reductions in the contingent consideration payable related to certain acquisitions made by Frutarom.
Q3 2019				
Integration Related Costs	187	8,164	0.07	Represents costs related to the integration of the Frutarom acquisition.
Restructuring and Other Charges, net	—	2,905	0.03	Represents costs primarily related to the Frutarom Integration Initiative and the 2019 Severance Program.
Frutarom Acquisition Related Costs	(3,603)	(2,199)	(0.02)	Represents a measurement period adjustment to the amount of the inventory "step-up" recorded.
Q4 2019				
Integration Related Costs	222	14,144	0.12	Represents costs related to the integration of the Frutarom acquisition.
Restructuring and Other Charges, net	—	5,947	0.05	Represents costs primarily related to the Frutarom Integration Initiative and the 2019 Severance Program.
Frutarom Acquisition Related Costs	—	636	0.01	Represents costs primarily compensation associated with Frutarom options that had not vested at the time the Frutarom acquisition closed.
N&B Transaction Related Costs	—	18,393	0.16	Represents costs and expenses related to the pending transaction with Nutrition & Biosciences Inc.
Q1 2018				
Restructuring and Other Charges, net	—	548	0.01	Represents severance costs related to the 2017 Productivity Program and Taiwan lab closure.
U.S. Tax Reform	—	649	0.01	Represents charges incurred related to enactment of certain U.S. tax legislation changes in December 2017.
Q2 2018				
Integration Related Costs	—	993	0.01	Represents costs related to the integration of David Michael.
Restructuring and Other Charges, net	—	147	—	Represents severance costs related to the 2017 Productivity Program.
Frutarom Acquisition Related Costs	—	30,446	0.38	Represents transaction-related costs and expenses related to the acquisition of Frutarom.
Q3 2018				
Integration Related Costs	18	722	0.01	Represents costs related to the integration of Frutarom.
Restructuring and Other Charges, net	—	699	0.01	Represents severance costs related to the 2017 Productivity Program.
U.S. Tax Reform	—	(8,151)	(0.10)	Represents charges incurred related to enactment of certain U.S. tax legislation changes in December 2017.
Frutarom Acquisition Related Costs	—	45,433	0.56	Represents transaction-related costs and expenses related to the acquisition of Frutarom.
Q4 2018				
Integration Related Costs	84	4,076	0.04	Represents costs related to the integration of the Frutarom acquisition.
Restructuring and Other Charges, net	—	1,672	0.01	Represents severance costs related to the 2017 Productivity Program and costs associated with the termination of agent relationships in a subsidiary.
U.S. Tax Reform	—	32,847	0.30	Represents additional expense based on updated repatriation plans requiring accruals for withholding taxes on deemed repatriation.
Frutarom Acquisition Related Costs	23,550	51,200	0.46	Represents transaction-related costs and expenses related to the acquisition of Frutarom.

(d) The sum of Net Income per basic share by quarter does not equal the earnings per share for the full year due to the impact of higher shares in the third and fourth quarters.

(e) The sum of Net Income per diluted share by quarter does not equal the earnings per share for the full year due to rounding.

INTERNATIONAL FLAVORS & FRAGRANCES INC.
FIVE-YEAR SUMMARY
(DOLLARS IN THOUSANDS EXCEPT PER SHARE AND PERCENTAGE AMOUNTS)

	Year Ended December 31,				
	2019 ^(a)	2018 ^(b)	2017 ^(k)	2016 ^(k)	2015 ^(k)
Consolidated Statement of Income Data					
Net sales	\$ 5,140,084	\$ 3,977,539	\$ 3,398,719	\$ 3,116,350	\$ 3,023,189
Cost of goods sold ^(c)	3,027,336	2,294,832	1,926,256	1,720,787	1,672,308
Gross profit	2,112,748	1,682,707	1,472,463	1,395,563	1,350,881
Research and development expenses	346,128	311,583	295,469	258,863	245,605
Selling and administrative expenses ^(d)	876,121	707,461	570,144	572,518	494,097
Restructuring and other charges, net ^(e)	29,765	5,079	19,711	(1,700)	7,594
Amortization of acquisition-related intangibles	193,097	75,879	34,693	23,763	15,040
Losses (gains) on sale of assets	2,367	(1,177)	(184)	(10,836)	—
Operating profit	665,270	583,882	552,630	552,955	588,545
Interest expense	138,221	132,558	65,363	52,989	46,062
Loss on extinguishment of debt ^(f)	—	38,810	—	—	—
Other (income) expense, net ^(g)	(30,403)	(35,243)	(49,778)	(23,751)	3,382
Income before taxes	557,452	447,757	537,045	523,717	539,101
Taxes on income ^(h)	97,184	107,976	241,380	118,686	119,854
Net income	460,268	339,781	295,665	405,031	419,247
Net income attributable to noncontrolling interests	4,395	2,479	—	—	—
Net income attributable to IFF stockholders	\$ 455,873	\$ 337,302	\$ 295,665	\$ 405,031	\$ 419,247
Percentage of net sales	9.0	8.5	8.7	13.0	13.9
Percentage of average shareholders' equity ⁽ⁱ⁾	7.4	8.7	17.8	25.1	26.9
Net income per share — basic	\$ 4.05	\$ 3.81	\$ 3.73	\$ 5.07	\$ 5.19
Net income per share — diluted	\$ 4.00	\$ 3.79	\$ 3.72	\$ 5.05	\$ 5.16
Average number of diluted shares (thousands)	113,307	88,121	79,370	79,981	80,891
Consolidated Balance Sheet Data					
Cash and cash equivalents	\$ 606,823	\$ 634,897	\$ 368,046	\$ 323,992	\$ 181,988
Receivables, net	876,197	937,765	663,663	550,658	537,896
Inventories	1,123,068	1,078,537	649,448	592,017	572,047
Property, plant and equipment, net	1,386,920	1,241,152	880,580	775,716	732,794
Goodwill and intangible assets, net ^(j)	8,349,531	8,417,710	1,572,075	1,365,906	1,247,393
Total assets	13,287,411	12,889,395	4,598,926	4,016,984	3,702,010
Bank borrowings, overdrafts and current portion of long-term debt	384,958	48,642	6,966	258,516	132,349
Long-term debt	3,997,438	4,504,417	1,632,186	1,066,855	935,373
Redeemable noncontrolling interests	99,043	81,806	—	—	—
Total Shareholders' equity	6,229,548	6,043,374	1,689,294	1,631,134	1,594,989
Other Data					
Current ratio	1.9	2.6	2.5	1.8	2.0
Additions to property, plant and equipment	\$ 235,978	\$ 170,094	\$ 128,973	\$ 126,412	\$ 101,030
Depreciation and amortization expense	323,330	173,792	117,967	102,469	89,597
Cash dividends declared per share	\$ 2.96	\$ 2.84	\$ 2.66	\$ 2.40	\$ 2.06
Number of shareholders of record at year-end	1,555	1,276	1,735	1,892	2,013
Number of employees at year-end	13,668	13,209	7,299	6,932	6,732

- (a) Results for the year ended 2019 include a full year of Frutarom's business operations.
- (b) Results for the year ended 2018 include Frutarom's business operations since the acquisition date of October 4, 2018.
- (c) The 2018 amount includes \$23.6 million related to amortization for inventory "step-up" costs for the Frutarom acquisition and \$7.1 million of net reimbursements from suppliers related to the previously disclosed FDA mandated recall. The 2017 amount includes \$15.9 million of costs related to the amortization for inventory "step-up" for the Fragrance Resources and PowderPure acquisitions and FDA mandated product recall costs of \$11.0 million. The 2016 amount includes \$7.6 million of costs related to the amortization for inventory "step-up" for the David Michael and Lucas Meyer acquisitions. The 2015 amount includes \$6.8 million of costs related to the fair value step-up of inventory for the Ottens Flavors and Lucas Meyer acquisitions.
- (d) The 2019 amount includes \$53.5 million of integration related costs, \$20.7 million of N&B transaction related costs, \$11.3 million compliance review and legal defense costs offset by \$8.0 million related to certain Brazil tax credits. The 2018 amount includes \$66.1 million of transaction costs related to acquisition of Frutarom, \$6.1 million of integration costs related to the David Michael and Frutarom acquisitions, and \$1.3 million of transaction costs related to the acquisitions of Fragrance Resources and PowderPure. The 2017 amount includes \$4.5 million of costs related to the Fragrance Resources and PowderPure acquisitions, \$3.3 million of integration costs related to the 2017 Productivity Program and \$5.3 million of reserve for payment of a tax assessment related to commercial rent for prior periods. The 2016 amount includes \$48.5 million of legal charges/credits principally related to litigation accrual and \$4.5 million of acquisition-related costs related to the acquisitions of Lucas Meyer, David Michael and Fragrance Resources. The 2015 amount includes \$10.5 million of reversal of the previously recorded provision for the Spanish capital tax case, \$7.2 million of expense for the acceleration of the contingent consideration payments related to the Aromor acquisition and \$11.5 million of acquisition-related costs for the Ottens and Lucas Meyer acquisitions.
- (e) The 2019 amount represents costs primarily related to the Frutarom Integration Initiative and the 2019 Severance Program. The 2018 and 2017 amounts primarily represent severance costs related to the 2017 Productivity Program. The 2016 amount represents accelerated depreciation related to the termination of a former executive officer and partial reversal of restructuring accruals recorded in the prior year.
- (f) For 2018, represents a \$34.9 million make whole payment on the Senior Notes - 2007 and a \$3.9 million realized loss on the termination of a fair value hedge in connection with the acquisition financing of Frutarom.
- (g) The 2017 amount includes \$12.2 million from the release of CTA related to the liquidation of a foreign entity.
- (h) The 2018 amount includes an additional charge based on updated repatriation plans requiring a \$32.8 million accrual of a deferred tax liability for foreign withholding and other taxes, including state taxes, on deemed repatriation. For 2017, represents charges incurred related to enactment of certain U.S. tax legislation changes in December 2017, including \$38.6 million related to net adjustments on deferred tax assets, and \$100.6 million related to taxes on deemed repatriation of earnings. The 2015 amount includes \$10.5 million of settlements due to favorable tax rulings in jurisdictions for which reserves were previously recorded for ongoing tax disputes.
- (i) Percentage of average shareholders' equity is calculated using the Net income attributable to IFF stockholders as a percent of the average of Total Shareholders' equity balance at the end of year and the preceding year.
- (j) Beginning in 2018, the amount includes \$6.9 billion in identifiable intangible assets and goodwill related to our acquisition of Frutarom.
- (k) The amounts have been adjusted to reflect the adoption of ASU 2017-07, which required that employers who present a measure of operating income in their statement of income to include only the service cost component of net periodic pension cost and postretirement costs in operating expenses. The impact of the adoption of this standard was a decrease in operating profit by approximately \$28.8 million, \$14.4 million and \$0.6 million for the fiscal year 2017, 2016 and 2015, respectively, and corresponding increases in Other (income) expense, net.

ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.
(UNLESS INDICATED OTHERWISE, DOLLARS IN MILLIONS EXCEPT PER SHARE AMOUNTS)

Overview

Company background

We are a leading innovator of sensory experiences that move the world. Our creative capabilities, global footprint, regulatory and technological know-how provide us a competitive advantage in meeting the demands of our global, regional and local customers around the world. The 2018 acquisition of Frutarom solidified our position as an industry leader across an expanded portfolio of products, resulting in a broader customer base across small, mid-sized and large companies and an expansion to new adjacencies that provides a platform for significant cross-selling opportunities.

Beginning in the first quarter of fiscal year 2020, we are operating our business across two segments, Taste and Scent. As part of this new operating model, nearly all of the former Frutarom business segment was consolidated with the Taste segment. The financial results presented in this Form 10-K reflect the Taste, Scent and legacy Frutarom business segments prior to the realignment.

As a leading creator of flavor offerings, we help our customers deliver on the promise of delicious and healthy foods and drinks that appeal to consumers. While we are a global leader, our Taste business is more regional in nature, with different formulas that reflect local taste preferences. Consequently, we manage our Taste business geographically, creating products in our regional creative centers which allow us to satisfy local taste preferences, while also helping to ensure regulatory compliance and production standards. We develop thousands of different flavors and taste offerings for our customers, most of which are tailor-made. We continually develop new formulas to meet changing consumer preferences and customer needs.

Our global Scent business creates fragrance compounds and fragrance ingredients that are integral elements in the world’s finest perfumes and best-known household and personal care products. We believe our innovative technologies, consumer insight and customer intimacy make us a market leader in scent.

Pending Transaction with Nutrition & Biosciences, Inc.

On December 15, 2019, we entered into definitive agreements with DuPont de Nemours, Inc. (“DuPont”), including an Agreement and Plan of Merger, pursuant to which DuPont will transfer its nutrition and biosciences business (the “N&B Business”) to Nutrition & Biosciences, Inc., a Delaware corporation and wholly owned subsidiary of DuPont (“N&B”), and N&B will merge with and into a wholly owned subsidiary of IFF in exchange for a number of shares of IFF common stock, par value \$0.125 per share (“IFF Common Stock”) (collectively, the “DuPont N&B Transaction”). In connection with the transaction, DuPont will receive a one-time \$7.3 billion special cash payment (the “Special Cash Payment”), subject to certain adjustments. As a result of the DuPont N&B Transaction, holders of DuPont’s common stock will own approximately 55.4% of the outstanding shares of IFF on a fully diluted basis. We believe that the combination of IFF and the N&B Business will create a global leader in high-value ingredients and solutions in the global Food & Beverage, Home & Personal Care and Health & Wellness markets. We expect that the companies’ complementary product portfolios will give the combined company leadership positions across key Taste, Texture, Scent, Nutrition, Enzymes, Cultures, Soy Proteins and Probiotics categories.

Completion of the DuPont N&B Transaction is subject to various closing conditions, including, among other things, (1) approval by IFF’s shareholders of the issuance of IFF Common Stock in connection with the transaction; (2) the effectiveness of the registration statements to be filed with the Securities and Exchange Commission pursuant to the Merger Agreement; and (3) the expiration of the applicable waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and obtaining certain other consents, authorizations, orders or approvals from governmental authorities. We expect that the transaction will close in early 2021.

2019 Financial Performance Overview

Sales

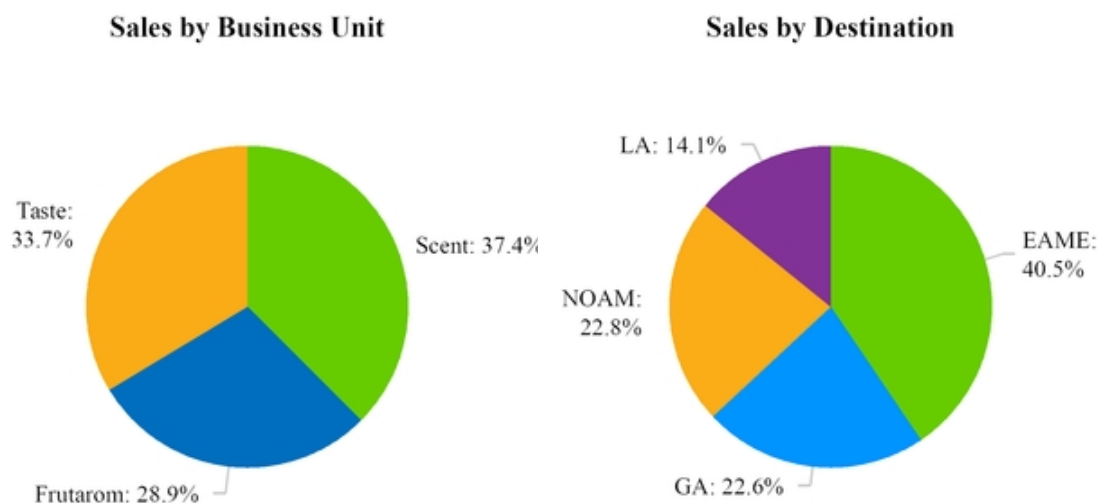
Sales in 2019 increased 29% on a reported basis and 32% on a currency neutral basis (which excludes the effects of changes in currency), with the effects of the Frutarom acquisition contributing approximately 28% to reported growth rates and 29% to currency neutral growth rates. Taste reported sales growth was flat but currency neutral sales grew 2%. Scent achieved sales growth of 2% on a reported basis and 4% on a currency neutral basis in 2019. The impact of an additional week of sales, or a 53rd week, in 2019 contributed approximately 1% to reported and currency neutral sales growth. Consolidated reported

and currency neutral sales growth was driven by additional sales from our acquisition of Frutarom, and to a lesser extent, new win performance (net of losses) in Scent.

From a geographic perspective, North America ("NOAM"), Europe, Africa and Middle East ("EAME"), Greater Asia ("GA") and Latin America ("LA") all delivered sales growth on a consolidated basis led by the Frutarom acquisition.

Exchange rate variations had an unfavorable impact on net sales for 2019 of 3%. The effect of exchange rates can vary by business and region, depending upon the mix of sales priced in U.S. dollars as compared to other currencies.

Our 25 largest customers accounted for 38% of total sales in 2019. In 2019, no customer accounted for more than 10% of sales. A key factor for commercial success is inclusion on our strategic customers' core supplier lists, which provides opportunities to win new business. We are on the core supplier lists of a large majority of our global and strategic customers within taste and scent.



Gross Margin

Gross margin decreased 120 basis points ("bps") year-over-year, driven principally by lower margins in our Frutarom business unit and higher raw material costs, which were partially offset by cost savings and productivity initiatives.

Operating profit

Operating profit increased \$81.4 million to \$665.3 million (12.9% of sales) in 2019 compared to \$583.9 million (14.7% of sales) in 2018. Included in 2019 were \$127.8 million of charges related to operational improvement initiatives, integration related costs, restructuring and other charges, net, losses on sale of assets, FDA mandated product recall, compliance review costs, Frutarom acquisition related costs and N&B transaction related costs. The comparable period in 2018 included \$93.5 million of charges related to operational improvement initiatives, integration related costs, restructuring and other charges, net, and Frutarom acquisition related costs, which were partially offset by acquisition related costs, gains on sale of assets and recoveries related to the FDA mandated product recall. Excluding these charges, adjusted operating profit was \$793.1 million for 2019, an increase from \$677.4 million for 2018, principally driven by the inclusion of Frutarom's operating profit for a full year in 2019 compared to one quarter in 2018, productivity initiatives, and volume increases on existing business, partially offset by price to input costs (including the net impact of the BASF supply chain disruption in 2018) and unfavorable foreign exchange rates.

Excluding the above charges, adjusted operating profit as a percentage of sales decreased to 15.4% for 2019 compared to 17.0% for 2018, principally driven by lower margins in our Frutarom business and price to input costs (including the net impact of the BASF supply chain disruption in 2018), partially offset by productivity initiatives. Foreign currency had a 2%

unfavorable impact on operating profit in the 2019 period compared to a 3% favorable impact on operating profit in the 2018 period.

Restructuring and Other Charges, net

Restructuring and other charges, net increased to \$29.8 million in 2019 compared to \$5.1 million in 2018. This increase was primarily driven by costs incurred in 2019 related to our Frutarom Integration Initiative and 2019 Severance Program, including severance costs related to outsourcing the IT function.

Cash Flows provided by Operating Activities

Cash flows provided by operations were \$699.0 million or 13.6% of sales in 2019 as compared to cash flows provided by operations of \$437.6 million, or 11.0% of sales, during 2018. The increase in operating cash flows from 2018 to 2019 was principally driven by higher earnings from inclusion of our Frutarom acquisition and lower net working capital (principally related to accounts receivable).

Our capital spend was \$236.0 million (4.6% of sales) during 2019. In light of our requirement to relocate one of our Fragrance Ingredients facilities in China, the ongoing construction of new facilities in India and Indonesia, and capital requirements to integrate our recently acquired Frutarom business, we expect that capital spending in 2020 will be about 4-5% of sales (net of potential grants and other reimbursements from government authorities).

Results of Operations

(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)	Year Ended December 31,			Change	
	2019	2018	2017	2019 vs. 2018	2018 vs. 2017
Net sales	\$ 5,140,084	\$ 3,977,539	\$ 3,398,719	29.2 %	17.0 %
Cost of goods sold	3,027,336	2,294,832	1,926,256	31.9 %	19.1 %
Gross profit	2,112,748	1,682,707	1,472,463		
Research and development (R&D) expenses	346,128	311,583	295,469	11.1 %	5.5 %
Selling and administrative (S&A) expenses	876,121	707,461	570,144	23.8 %	24.1 %
Restructuring and other charges, net	29,765	5,079	19,711	NMF	(74.2)%
Amortization of acquisition-related intangibles	193,097	75,879	34,693	154.5 %	118.7 %
Losses (gains) on sale of assets	2,367	(1,177)	(184)	NMF	NMF
Operating profit	665,270	583,882	552,630		
Interest expense	138,221	132,558	65,363	4.3 %	102.8 %
Loss on extinguishment of debt	—	38,810	—	(100.0)%	NMF
Other income, net	(30,403)	(35,243)	(49,778)	(13.7)%	(29.2)%
Income before taxes	557,452	447,757	537,045		
Taxes on income	97,184	107,976	241,380	(10.0)%	(55.3)%
Net income	\$ 460,268	\$ 339,781	\$ 295,665		
Net income attributable to noncontrolling interest	4,395	2,479	—	NMF	NMF
Net income attributable to IFF stockholders	455,873	337,302	295,665		
Net income per share — diluted	\$ 4.00	\$ 3.79	\$ 3.72	5.5 %	1.9 %
Gross margin	41.1%	42.3%	43.3%	(120.2)	(101.9)
R&D as a percentage of sales	6.7%	7.8%	8.7%	(110.0)	(86.0)
S&A as a percentage of sales	17.0%	17.8%	16.8%	(74.2)	101.1
Operating margin	12.9%	14.7%	16.3%	(173.7)	(158.0)
Adjusted operating margin ⁽¹⁾	15.4%	17.0%	18.2%	(160.0)	(117.2)
Effective tax rate	17.4%	24.1%	44.9%	NMF	NMF
Segment net sales					
Taste	\$ 1,731,919	\$ 1,737,349	\$ 1,632,166	(0.3)%	6.4 %
Scent	1,922,717	1,880,630	1,766,553	2.2 %	6.5 %
Frutarom	1,485,448	359,560	N/A	NMF	NMF
Consolidated	\$ 5,140,084	\$ 3,977,539	\$ 3,398,719		

NMF: Not meaningful

(1) Adjusted operating margin for the year ended December 31, 2019 excludes integration related costs of \$55.2 million, restructuring and other charges of \$29.8 million, N&B transaction related costs of \$20.7 million, compliance review and legal defense costs of \$11.3 million, Frutarom acquisition related costs of \$5.9 million, and operational improvement initiatives of \$2.3 million, losses on sale of assets of \$2.4 million, and FDA mandated product recall of \$0.3 million.

Adjusted operating margin for the year ended December 31, 2018 excludes Frutarom acquisition related costs of \$89.6 million, integration related costs of \$7.2 million, restructuring and other charges of \$4.1 million, and operational improvement initiatives of \$2.2 million, partially offset by FDA mandated product recall of \$7.1 million, acquisition related costs of \$1.3 million, and gain on sale of assets of \$1.2 million.

Adjusted operating margin for the year ended December 31, 2017 excludes net legal charges/credits of \$1.0 million, acquisition related costs of \$20.4 million, gain on sale of assets of \$0.2 million, operational improvement initiative costs of \$1.8 million, restructuring and other charges, net of \$19.7 million, FDA mandated product recall costs of \$11.0 million, UK pension settlement charge of \$2.8 million, tax assessment of \$5.3 million, and integration related costs of \$4.2 million.

Cost of goods sold includes the cost of materials and manufacturing expenses; raw materials generally constitute approximately 50% of total inventory. R&D expenses relate to the development of new and improved molecules and technologies, technical product support and compliance with governmental regulations. S&A expenses include expenses necessary to support our commercial activities and administrative expenses principally associated with staff groups that support our overall operating activities.

2019 IN COMPARISON TO 2018

Sales

Sales for 2019 totaled \$5.1 billion, an increase of 29% from the prior year on a reported basis and 32% on a currency neutral basis. The Frutarom acquisition contributed 28% on a reported basis and 29% on a currency neutral basis. The impact of an additional week of sales, or a 53rd week, in 2019 contributed approximately 1% to reported and currency neutral sales growth. Sales growth primarily reflected the additional sales from our acquisition of Frutarom, and to a lesser extent, new win performance (net of losses) in Scent.

Sales performance by segment was as follows:

	% Change in Sales - 2019 vs. 2018	
	Reported	Currency Neutral ⁽¹⁾
Taste	0%	2%
Scent	2%	4%
Frutarom	—%	—%
Total	29%	32%

(1) Currency neutral sales growth is calculated by translating prior year sales at the exchange rates for the corresponding 2019 period.

Taste

Taste sales in 2019 were flat on a reported basis and increased 2% on a currency neutral basis versus the prior year period. Currency neutral performance was driven by new wins (net of losses) which was partially offset by volume reductions on existing business. Currency neutral sales growth was primarily driven by GA new wins (net of losses) and volume increases on existing business.

Scent

Scent sales in 2019 increased 2% on a reported basis and 4% on a currency neutral basis. Reported and currency neutral sales growth primarily reflected new win performance (net of losses), which were partially offset by volume reductions on existing business.

Sales growth in the Scent business unit was led by Fine Fragrances and Consumer Fragrances, which both were primarily driven by new win performance (net of losses), partially offset by volume reductions on existing business.

Frutarom

Frutarom sales in 2019 were \$1.5 billion, which included approximately \$1.1 billion in sales of Flavor Compounds and approximately \$367 million in sales of Ingredient product categories. We completed our acquisition of Frutarom on October 4, 2018 and therefore, the year over year sales growth has been excluded from the above table.

Reported and currency neutral sales for the fourth quarter of 2019 grew 4% and 6%, respectively, primarily driven by growth in the Flavor Compounds product category.

Cost of Goods Sold

Cost of goods sold, as a percentage of sales, increased 120 bps, to 58.9% in 2019 compared to 57.7% in 2018, principally driven by lower margins in our Frutarom business unit and unfavorable price versus input costs, which were partially offset by cost savings and productivity initiatives.

Research and Development (R&D)

Overall R&D expenses, as a percentage of sales, decreased to 6.7% in 2019 compared to 7.8% in 2018. The decrease as a percentage of sales in 2019 was principally due to lower R&D expenses in our Frutarom segment as a percentage of sales.

Selling and Administrative (S&A)

S&A expenses increased \$168.7 million to \$876.1 million, or 17.0% as a percentage of sales, in 2019 compared to \$707.5 million, or 17.8% as a percentage of sales, in 2018.

Included in 2019 was integration related costs of \$53.5 million, N&B transaction related costs of \$20.7 million, compliance review and legal defense costs of \$11.3 million and Frutarom acquisition related costs of \$1.7 million, compared to Frutarom acquisition related costs of \$66.1 million and integration related costs of \$6.1 million, partially offset by acquisition related costs of \$1.3 million in 2018. Excluding these costs, adjusted S&A expense increased by \$152.3 million, but decreased to 15.3% of sales in 2019 compared to 16.0% of sales in 2018. The slight decrease as a percentage of sales was due to a decline in personnel related costs and the impact of our acquisition of Frutarom, partially offset by income related to certain Brazil tax credits.

During the fourth quarter of 2019, we recognized \$8.0 million in income related to the expected recoveries of previously paid indirect taxes in Brazil from the period from 2011 to 2018 that have been subject to litigation between us and certain tax authorities. The amount has been recorded in Selling and administrative expense.

Restructuring and Other Charges

Frutarom Integration Initiative

In connection with the acquisition of Frutarom, we began to execute an integration plan that, among other initiatives, seeks to optimize its manufacturing network. As part of the Frutarom Integration Initiative, we expect to close approximately 35 manufacturing sites over the next two years with most of the closures targeted to occur before the end of fiscal 2020. During 2019, we announced the closure of 10 facilities, of which six facilities are in Europe, Africa and Middle East, two facilities in Latin America, and one facility in each North America and Greater Asia regions. Since the inception of the initiative, we have expensed \$10.4 million. Total costs for the program are expected to be approximately \$65 million including cash and non-cash items.

2019 Severance Charges

During 2019, the Company incurred severance charges related to approximately 330 headcount reductions. The headcount reductions primarily related to the Scent business unit and outsourcing of certain IT functions, with additional amounts related to headcount reductions in all business units associated with the establishment of a new shared service center in Europe. Since the inception of the program, the Company has expensed \$21.3 million. Total costs for the program are expected to be approximately \$25 million.

2017 Productivity Program

In connection with 2017 Productivity Program, we recorded \$24.5 million of charges related to personnel costs and lease termination costs since the program's inception. Total costs for the program are expected to be approximately \$25 million.

Amortization of Acquisition-Related Intangibles

Amortization expenses increased to \$193.1 million in 2019 compared to \$75.9 million in 2018. The increase of \$117.2 million was principally driven by the impact of the Frutarom acquisition in 2018.

Operating Results by Business Unit

We evaluate the performance of business units based on segment profit which is defined as operating profit before Restructuring and certain non-recurring items, Interest expense, Other expense, net and Taxes on income. See Note 15 to our Consolidated Financial Statements for the reconciliation to Income before taxes.

	For the Year Ended December 31,	
	2019	2018
<i>(DOLLARS IN THOUSANDS)</i>		
Segment profit:		
Taste	\$ 382,590	\$ 395,190
Scent	333,522	329,548
Frutarom	126,804	27,358
Global Expenses	(49,836)	(74,730)
Operational Improvement Initiatives	(2,267)	(2,169)
Acquisition Related Costs	—	1,289
Integration Related Costs	(55,160)	(7,188)
Restructuring and Other Charges, net	(29,765)	(4,086)
(Losses) gains on Sale of Assets	(2,367)	1,177
FDA Mandated Product Recall	(250)	7,125
Frutarom Acquisition Related Costs	(5,940)	(89,632)
Compliance Review & Legal Defense Costs	(11,314)	—
N&B Transaction Related Costs	(20,747)	—
Operating Profit	<u>\$ 665,270</u>	<u>\$ 583,882</u>
Profit margin		
Taste	22.1%	22.7%
Scent	17.3%	17.5%
Frutarom	8.5%	7.6%
Consolidated	12.9%	14.7%

Taste Business Unit

Taste segment profit decreased \$12.6 million to \$382.6 million (22.1% of segment sales) in 2019 from \$395.2 million (22.7% of segment sales) in the comparable 2018 period. The decrease in segment profit principally reflected higher raw material costs, and unfavorable manufacturing variances, partially offset by the benefit of cost savings and productivity initiatives.

Scent Business Unit

Scent segment profit increased \$4.0 million to \$333.5 million (17.3% of segment sales) in 2019, compared to \$329.5 million (17.5% of segment sales) reported in 2018. Segment profit as a percentage of sales included the impact of unfavorable price versus input costs partially offset by the benefit of cost savings and productivity initiatives.

Frutarom Business Unit

Frutarom segment profit was \$126.8 million for 2019 (8.5% of segment sales), compared to \$27.4 million for 2018 (7.6% of segment sales). Frutarom segment profit was \$32.0 million for the fourth quarter of 2019 (8.5% of segment sales), compared to \$27.4 million for the fourth quarter of 2018 (7.6% of segment sales).

Global Expenses

Global expenses represent corporate and headquarter-related expenses which include legal, finance, human resources and R&D and other administrative expenses that are not allocated to an individual business unit. In 2019, Global expenses were \$49.8 million compared to \$74.7 million during 2018. The decrease was principally driven by higher gains from our currency hedging program in the current year and lower incentive compensation expense in 2019.

Interest Expense

In 2019, interest expense increased \$5.7 million to \$138.2 million, compared to \$132.6 million in 2018 primarily driven by a full year of interest expense in 2019 related to the September 2018 debt issuances, partially offset by \$47.1 million of fees and interest incurred in the third quarter of 2018 in connection with the acquisition of Frutarom. Average cost of debt was 3.0% for the 2019 period compared to 4.3% in 2018.

Loss on extinguishment of debt

Loss on extinguishment of debt was \$38.8 million in 2018, driven by \$34.9 million make whole payment on the Senior Notes - 2007 and \$3.9 million realized loss on the termination of a fair value hedge.

Other (Income) Expense, Net

Other income, net, decreased approximately \$4.8 million to \$30.4 million of income in 2019 versus \$35.2 million of income in 2018. The decrease was primarily driven by higher losses on foreign exchange and higher pension related expenses, offset by higher investment income in 2019 as well as income related to the realization of a deferred gain on the government imposed relocation of a site in China.

Income Taxes

The effective tax rate was 17.4% in 2019 as compared to 24.1% in 2018. The year-over-year decrease was largely due to a more favorable mix of earnings, and the absence of the \$32.8 million charge in 2018 associated with a change in our assertion under APB 23, partially offset by loss provisions, the establishment of a valuation allowance against certain U.S. state deferred taxes, and the absence of the reversal of certain valuation allowances on U.S. state deferred taxes that benefited 2018.

Excluding the \$26.2 million tax benefit associated with the pre-tax operational improvement initiatives, integration related costs, restructuring and other charges, net, losses on sale of assets, FDA mandated product recall, Frutarom acquisition related costs, compliance review & legal defense costs, and N&B transaction related costs, the adjusted effective tax rate for 2019 was 18.1%. For 2018, the adjusted effective tax rate was 18.4% excluding the \$4.0 million tax benefit associated with the pre-tax restructuring, operational improvement initiatives, integration related costs and Frutarom acquisition related costs, which were partially offset by the tax charge associated with acquisition-related costs, gains on sales of fixed assets, FDA mandated product recall costs and the impact of the U.S. tax reform. The year-over-year decrease was largely due to a more favorable mix of earnings, partially offset by loss provisions and the establishment of a valuation allowance on U.S. state deferred taxes.

2018 IN COMPARISON TO 2017

For a comparison of our results of operations for the fiscal years ended December 31, 2018 and December 31, 2017, see “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our Form 10-K for the fiscal year ended December 31, 2018, filed with the SEC on February 26, 2019.

Liquidity and Capital Resources

Cash and Cash Equivalents

We had cash and cash equivalents of \$606.8 million at December 31, 2019 compared to \$634.9 million at December 31, 2018, of which \$578.7 million of the balance at December 31, 2019 was held outside the United States. Cash balances held in foreign jurisdictions are, in most circumstances, available to be repatriated to the United States.

Effective utilization of the cash generated by our international operations is a critical component of our strategy. We regularly repatriate cash from our non-U.S. subsidiaries to fund financial obligations in the U.S. As we repatriate these funds to the U.S. we will be required to pay income taxes in certain U.S. states and applicable foreign withholding taxes during the period when such repatriation occurs. Accordingly, as of December 31, 2019, we have a deferred tax liability of \$46.1 million for the effect of repatriating the funds to the U.S.

Restricted Cash

As discussed in Note 3 to the Consolidated Financial Statements, restricted cash relates to amounts escrowed related to certain payments to be made to former Frutarom option holders in future periods. At December 31, 2019 we had a balance of \$17.1 million compared to \$13.6 million at December 31, 2018.

Cash Flows from Operating Activities

Operating cash flows in 2019 were \$699.0 million compared to \$437.6 million in 2018 and \$390.8 million in 2017. The increase in operating cash flows from 2018 to 2019 was principally driven by higher earnings from inclusion of our Frutarom acquisition and lower net working capital (principally related to accounts receivable). The increase in operating cash flows from 2017 to 2018 was principally driven by lower litigation settlement and pension payments and higher net income, offset by higher net working capital (principally related to inventories).

Working capital (current assets less current liabilities) totaled \$1.39 billion at year-end 2019 compared to \$1.81 billion at December 31, 2018. This decrease in working capital of \$423.2 million primarily reflected decreases in accounts receivable and increases in accounts payable, current portion of long-term debt and other current liabilities, offset by increases in inventories, prepaid expenses and other current assets as compared to the prior year.

We entered into certain factoring agreements in the U.S. and The Netherlands under which we can factor up to approximately \$100 million in receivables. The new factoring agreements supplement our existing factoring programs that are sponsored by certain customers. Under all of the arrangements, we sell the receivables on a non-recourse basis to unrelated financial institutions and account for the transactions as a sale of receivables. The applicable receivables are removed from our Consolidated Balance Sheet when the cash proceeds are received by us. As of December 31, 2019, 2018 and 2017, we had sold receivables pursuant to these factoring programs of approximately \$205.7 million, \$168.3 million and \$160.1 million, respectively. Participation in the various programs increased cash provided by operations by approximately \$37.7 million, \$13.6 million and \$15.0 million in 2019, 2018 and 2017, respectively. The cost of participating in these programs was approximately \$7.1 million, \$3.4 million, and \$3.0 million in 2019, 2018, and 2017, respectively.

Cash Flows Used in Investing Activities

Net investing activities in 2019 utilized \$225.9 million compared to \$5,013.2 million and \$299.9 million in 2018 and 2017, respectively. The decrease in cash paid for investing activities was primarily driven by higher payments for acquisitions in the prior year. In 2019, we acquired certain companies as described in Note 3 for approximately \$49.1 million, net of cash acquired. In 2018, we acquired Frutarom for approximately \$7 billion (net of cash acquired) of which \$4.9 billion was paid in cash.

Additions to property, plant and equipment were \$236.0 million, \$170.1 million and \$129.0 million in 2019, 2018 and 2017, respectively (net of grants and other reimbursements from government authorities). These investments largely arise from our ongoing focus to align our manufacturing facilities with customer demand, primarily in emerging markets, and new technology consistent with our strategy.

The decrease in cash used in investing activities from 2019 compared to 2018, primarily driven by the items above, were partially offset by proceeds from the disposal of assets and proceeds from the termination of existing cross currency swap instruments during the current year.

In light of our requirement to relocate one of our Fragrance Ingredients facilities in China, the ongoing construction of new facilities in India and Indonesia, and capital requirements to integrate our recently acquired Frutarom business, we expect that capital spending in 2020 will be about 4-5% of sales (net of potential grants and other reimbursements from government authorities).

Frutarom Integration Initiative

We expect to incur costs related to the Frutarom Integration Initiative. Integration projects are primarily focused on driving cost synergies in the manufacturing and creative networks, procurement and overhead functions. Restructuring costs associated with these initiatives are expected to include employee-related cash costs, including severance, retirement and other termination benefits, fixed asset write-downs and contract termination and other costs. In addition, other costs associated with the Frutarom Integration Initiative are expected to include advisory and personnel costs for managing and implementing integration projects.

Total restructuring costs for the program are expected to be approximately \$65 million including cash and non-cash items. During 2019, we incurred \$10.4 million in costs related to the closure of 10 sites. We expect to close approximately 35 manufacturing sites over the next two years with most of the closures targeted to occur before the end of fiscal 2020. The costs principally related to severance and fixed asset write-downs, with the remainder comprising costs such as contract termination and relocation.

Additionally, during 2019, we recorded \$55.2 million in advisory services, retention bonuses and performance stock awards costs related to the integration of the Frutarom acquisition.

We expect to achieve \$145 million of synergy targets and have realized approximately \$50 million of cost synergies in 2019.

Cash Flows Used in Financing Activities

Net cash used in financing activities in 2019 was \$505.1 million, compared to cash provided by financing activities of \$4,870.7 million in 2018 and cash used in financing activities of \$42.6 million in 2017, respectively. The decrease in 2019 versus 2018 was principally driven by Frutarom related financing activities in 2018, partially offset by higher dividend payments in the current year.

The increase in 2018 versus 2017 was principally driven by Frutarom related financing activities where we issued \$3.3 billion of debt, including €1.1 billion aggregate principal amount of the 2018 Euro Senior Notes, \$1.5 billion aggregate principal amount of the 2018 USD Senior Notes, \$139.5 million aggregate principal amount of the Amortizing Note portion of the TEUs and \$350 million aggregate principal amount of the Term Loan, as compared to \$493.9 million of 2047 Notes issued in 2017. We also issued \$2.3 billion of equity in the third quarter of 2018 to finance the Frutarom acquisition, including \$1.6 billion of our common stock and \$685.5 million of the stock purchase contract portion ("SPC") of the TEUs. Additionally, in 2018 we repaid \$288.8 million of our Senior notes - 2007, including the loss on extinguishment of debt of \$38.8 million.

At December 31, 2019, we had \$4,382.4 million of debt outstanding compared to \$4,553.1 million outstanding at December 31, 2018.

We paid dividends totaling \$313.5 million, \$230.2 million and \$206.1 million in 2019, 2018 and 2017, respectively. The cash dividend declared per share in 2019, 2018 and 2017 was \$2.96, \$2.84 and \$2.66, respectively.

Our capital allocation strategy is primarily focused on debt repayment to maintain our investment grade rating. We will also prioritize capital investment in our businesses to support the strategic long term plans. We are also committed to maintaining our history of paying a dividend to investors determined by our Board of Directors at its discretion based on various factors.

In December 2012, the Board of Directors authorized a \$250.0 million share repurchase program, which commenced in the first quarter of 2013. In August 2015, the Board of Directors approved an additional \$250.0 million share repurchase authorization and extension through December 31, 2017. Based on the total remaining amount of \$56.1 million available under the amended repurchase program as of October 31, 2017, the Board of Directors re-approved on November 1, 2017 a \$250.0 million share repurchase authorization and extension for a total value of \$300.0 million available under the program, which expires on November 1, 2022. Based on the total remaining amount of \$279.7 million available under the repurchase program, approximately 2.2 million shares, or 2.0% of shares outstanding (based on the market price and shares outstanding as of December 31, 2019) could be repurchased under the program as of December 31, 2019. As of May 7, 2018, we have suspended our share repurchases.

Capital Resources

Operating cash flow provides the primary source of funds for capital investment needs, dividends paid to shareholders and debt service repayments. We anticipate that cash flows from operations and availability under our existing credit facilities will be sufficient to meet our investing and financing needs. We regularly assess our capital structure, including both current and long-term debt instruments, as compared to our cash generation and investment needs in order to provide ample flexibility and to optimize our leverage ratios. We believe our existing cash balances are sufficient to meet our debt service requirements.

Pending Transaction with Nutrition & Biosciences, Inc.

In conjunction with the DuPont N&B Transaction, IFF and N&B have engaged Morgan Stanley Senior Funding, Inc. and Credit Suisse Loan Funding LLC as joint lead arrangers and bookrunners to structure, arrange and syndicate the financings that will be required to close the transaction. Specifically, N&B will be the initial borrower under a \$1.25 billion 3-year/5-year senior unsecured term loan facility and, to the extent necessary, a \$6.25 billion tranche of the 364-Day senior unsecured bridge facility, which will be used to finance the Special Cash Payment to DuPont in connection with the separation and to pay related fees and expenses. N&B may access the bond markets in advance of closing the merger to pre-fund the transaction and replace all or a portion of the Bridge Facility. Following the consummation of the DuPont N&B Transaction, all obligations of N&B will be guaranteed by IFF, or at the election of N&B and IFF, assumed by IFF.

Upon completion of our combination with N&B, DuPont shareholders will own approximately 55.4% of the shares of IFF, and existing IFF shareholders will own approximately 44.6% of the shares of IFF. A proxy statement is expected to be filed with the SEC pursuant to which IFF shareholders will be asked to approve the share issuance required to effect the N&B Transaction.

On January 17, 2020, IFF and certain of our subsidiaries entered into an amendment to our Credit Facility and Term Loan to facilitate the N&B transaction and the related guarantee or assumption by IFF of indebtedness to be incurred by N&B, in connection with the pending transaction with N&B by, among other things, providing that after the closing date of the transaction, our maximum permitted ratio of Net Debt to Consolidated EBITDA shall be 4.50 to 1.0, stepping down to 3.50 to 1.0 over time (with a step-up if we consummate certain qualified acquisitions) for each of the Credit Facility and Term Loan.

Commercial Paper

We supplement short-term liquidity with access to capital markets, mainly through bank credit facilities. The Credit Facility is used as a backstop for our commercial paper program.

Commercial paper issued by us generally has terms of 90 days or less. As of December 31, 2019, and 2018, there was no commercial paper outstanding. The Credit Facility is used as a backstop for our commercial paper program. We did not draw any commercial paper nor the Credit Facility during 2019.

Credit Facility and Term Loan

On May 21, 2018, June 6, 2018 and July 13, 2018, IFF and certain of its subsidiaries amended and restated our existing amended and restated credit agreement with Citibank, N.A., as administrative agent (as amended, the "Credit Facility") in connection with the acquisition of Frutarom, to, among other things (i) extend the maturity date of the Credit Facility until June 6, 2023, (ii) increase the maximum ratio of net debt to EBITDA on and after the closing date of the acquisition and (iii) increase the drawn down capacity to \$1 billion, consisting of a \$585 million tranche A revolving credit facility (which provides for borrowings available in U.S. dollars, euros, Swiss francs, Japanese yen and/or British pounds sterling, with a sublimit of \$25 million for swing line borrowings) ("Tranche A") and a \$415 million tranche B revolving credit facility (which provides for borrowings available in U.S. dollars, euros, Swiss francs, Japanese yen and/or British pounds sterling, with sublimits of €50 million and \$25 million for swing line borrowings) ("Tranche B" and, together with Tranche A, the "Revolving Facility"). The interest rate on the Revolving Facility will be, at the applicable borrower's option, a per annum rate equal to either (x) an adjusted LIBOR rate plus an applicable margin varying from 0.75% to 1.75% or (y) a base rate plus an applicable margin varying from 0.00% to 0.750%, in each case depending on the public debt ratings for non-credit enhanced long-term senior unsecured debt issued by us. Other terms and covenants under the Credit Facility remain substantially unchanged. The Credit Facility is available for general corporate purposes of each borrower and its subsidiaries. The obligations under the Credit Facility are unsecured and we have guaranteed the obligations of each other borrower under the Credit Facility. We pay a commitment fee on the aggregate unused commitments; such fee is not material.

On June 6, 2018 and amended on July 13, 2018, we entered into a term loan credit agreement to replace a portion of the bridge loan facility, reducing the amount of the bridge loan commitments by \$350 million. Under the term loan credit agreement, the lenders thereunder committed to provide, subject to certain conditions, a senior unsecured term loan facility (as amended, "Term Loan") in an original aggregate principal amount of up to \$350.0 million, maturing three years after the funding date thereunder. The proceeds from the term loan were received on October 3, 2018.

The Term Loan bears interest, at our option, at a per annum rate equal to either (x) an adjusted LIBOR rate plus an applicable margin varying from 0.75% to 2.00% or (y) a base rate plus an applicable margin varying from 0.00% to 1.00%, in each case depending on the public debt ratings for non-credit enhanced long-term senior unsecured debt issued by us. Loans under the Term Loan will amortize quarterly at a per annum rate of 10.0% of the aggregate principal amount of the loans made under the Term Loan on the funding date, commencing December 31, 2018, with the balance payable on October 3, 2021. We may voluntarily prepay the term loans without premium or penalty.

During the year ended December 31, 2019, we made payments of \$110 million on the Term Loan.

The Credit Facility and Term Loan contain various covenants, limitations and events of default customary for similar facilities for similarly rated borrowers, including the requirement for us to maintain, at the end of each fiscal quarter, a ratio of net debt for borrowed money to adjusted EBITDA in respect of the previous 12-month period, including the pro forma effect of the acquisition of Frutarom, of not more than 4.5 to 1.0, which shall be reduced to 4.25 to 1.0 as of the end of September 30, 2019, 4.0 to 1.0 as of the end of March 31, 2020 and to 3.5 to 1.0 as of the end of March 31, 2021.

As of December 31, 2019, we had no outstanding borrowings under our \$1 billion Credit Facility and \$240 million outstanding for the Term Loan. The amount that we are able to draw down under the Credit Facility is limited by financial covenants as described in more detail below. As of December 31, 2019, our draw down capacity was \$1 billion under the Credit Facility.

At December 31, 2019 and 2018 we were in compliance with all financial and other covenants, including the net debt to adjusted EBITDA ratio. At December 31, 2019 our Net Debt/adjusted EBITDA⁽¹⁾ ratio was 3.22 to 1 as defined by the credit facility agreements, well below the financial covenants of existing outstanding debt. Failure to comply with the financial and other covenants under our debt agreements would constitute default and would allow the lenders to accelerate the maturity of all indebtedness under the related agreement. If such acceleration were to occur, we would not have sufficient liquidity available to repay the indebtedness. We would likely have to seek amendments under the agreements for relief from the financial covenants or repay the debt with proceeds from the issuance of new debt or equity, and/or asset sales, if necessary. We

may be unable to amend the agreements or raise sufficient capital to repay such obligations in the event the maturities are accelerated.

(1) *Adjusted EBITDA and Net Debt, which are non-GAAP measures used for these covenants, are calculated in accordance with the definition in the debt agreements. In this context, these measures are used solely to provide information on the extent to which we are in compliance with debt covenants and may not be comparable to adjusted EBITDA and Net Debt used by other companies. Reconciliations of adjusted EBITDA to net income and net debt to total debt are as follows:*

<i>(DOLLARS IN MILLIONS)</i>	Year Ended December 31, 2019	
Net income	\$	455.9
Interest expense		138.2
Income taxes		97.2
Depreciation and amortization		323.3
Specified items⁽¹⁾		122.1
Non-cash items⁽²⁾		36.9
Adjusted EBITDA	\$	<u>1,173.6</u>

- (1) *Specified items for the 12 months ended December 31, 2019 of \$122.1 million consist of acquisition related costs, operational improvement initiatives, integration related costs, restructuring and other charges, net, FDA mandated product recall, Frutarom acquisition related costs, compliance review and legal defense costs and N&B transaction related costs.*
- (2) *Non-cash items represent all other adjustments to reconcile net income to net cash provided by operations as presented on the Statement of Cash Flows, including stock-based compensation and gain on sale of assets.*

<i>(DOLLARS IN MILLIONS)</i>	December 31, 2019	
Total debt	\$	4,382.4
Adjustments:		
Cash and cash equivalents		(606.8)
Net debt	\$	<u>3,775.6</u>

Senior Notes

As of December 31, 2019, we had \$4.09 billion aggregate principal amount outstanding in senior unsecured notes, with \$1.79 billion principal amount denominated in EUR and \$2.30 billion principal amount denominated in USD. The notes bear interest ranging from 0.50% per year to 5.00% per year, with maturities from September 2020 to September 2048. Of these notes, \$300 million in aggregate principal amount of our 3.40% senior notes will mature in September 2020. See Note 9 to the Consolidated Financial Statements for further information on our senior notes.

Tangible Equity Units - Senior Unsecured Amortizing Notes

On September 17, 2018, in connection with the issuance of the TEUs, we issued \$139.5 million aggregate principal amount of Amortizing Notes. There are no covenants or provisions in the indenture related to the TEUs that would afford the holders of the amortizing notes protection in the event of a highly leveraged transaction, reorganization, restructuring, merger or similar transaction involving us that may adversely affect such holders. If a fundamental change occurs, or if we elect to settle the SPCs early, then the holders of the Amortizing Notes will have the right to require us to repurchase the Amortizing Notes at a repurchase price equal to the principal amount of the Amortizing Notes as of the repurchase date plus accrued and unpaid interest. The indenture also contains customary events of default which would permit the holders of the Amortizing Notes to declare the notes to be immediately due and payable if not cured within applicable grace periods, including the failure to make timely installment payments on the notes or other material indebtedness, failure to give notice of a fundamental change and specified events of bankruptcy and insolvency. See Note 8 for further information on the TEUs.

Other Contingencies

Pending Transaction with Nutrition & Biosciences, Inc.

The Merger Agreement governing the DuPont N&B Transaction, subjects IFF to various contingent payments to the extent that the transaction is not consummated. Specifically, the Merger Agreement provides DuPont the right to receive a termination fee of \$521.5 million, in certain circumstances, including if the agreement is terminated due to the IFF Board

changing its recommendation and to reimburse DuPont’s transaction-related expenses in an amount up to \$75 million if the Merger Agreement is terminated because IFF’s shareholders do not approve the issuance of IFF Common Stock in connection with the transaction.

Brazil Tax Credits

In 2017 the Brazilian Supreme Court (“BSC”) ruled that Brazilian tax authorities should not include a value added tax known as “ICMS” in the calculation of certain indirect taxes (“PIS/COFINS”). By removing the ICMS from the calculation of the indirect tax base, the Court effectively eliminated a “tax on tax”. The Brazilian tax authorities filed an appeal seeking clarification of certain matters, including the amount of ICMS to which taxpayers would be entitled in order to reduce their indirect tax base (i.e. the gross rate or the net rate.)

In light of the BSC’s decision, in November 2017, we filed suit consistent with the BSC decision to require that ICMS be excluded from the PIS/COFINS calculation and received a favorable preliminary decision that was confirmed by the BSC in September 2018. This preliminary ruling granted us the right to prospectively exclude ICMS amounts from the PIS/COFINS calculation, but left open the issue of whether the Company could recover the gross or net amount of ICMS amounts paid on PIS/COFINS for the period from November 2011 to December 2018.

In early January 2020, we were informed that a favorable decision was reached, confirming that we were entitled to recover the ICMS overpayments on PIS/COFINS for the period from November 2011 to December 2018, plus interest on that amount. The ruling did not, however, settle the question of whether the Company is eligible to recover based on the gross or the net amount of ICMS amounts paid on PIS/COFINS. A final ruling on the gross versus net amount issued is expected to be rendered in mid-2020.

Based on currently available information, the Company recognized \$8.0 million as a recovery in the fourth quarter of 2019 as a component of Selling and administrative expenses. Additional amounts may be recorded in 2020 upon completion of the final claim and subject to the satisfactory outcome of the final ruling on the use of the gross method of calculation.

Other Commitments

Compliance with existing governmental requirements regulating the discharge of materials into the environment has not materially affected our operations, earnings or competitive position. In 2019 and 2018, we spent \$4.5 million and \$6.2 million on capital projects and \$26.0 million and \$21.7 million, respectively, in operating expenses and governmental charges for the purpose of complying with such regulations. Expenditures for these purposes will continue for the foreseeable future. In addition, we are party to a number of proceedings brought under the Comprehensive Environmental Response, Compensation and Liability Act or similar state statutes. It is expected that the impact of any judgments in or voluntary settlements of such proceedings will not be material to our financial condition, results of operations or liquidity.

Contractual Obligations

At December 31, 2019, we had contractual payment obligations due within the time periods as specified in the following table:

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
(DOLLARS IN MILLIONS)		2020	2021 - 2022	2023 - 2024	2025 and thereafter
Borrowings ⁽¹⁾	\$ 4,417	\$ 382	\$ 578	\$ 860	\$ 2,597
Interest on borrowings ⁽¹⁾	2,131	131	231	215	1,554
Leases ⁽²⁾	374	51	84	61	178
Pension funding obligations ⁽³⁾	76	25	51	—	—
Postretirement obligations ⁽⁴⁾	64	4	8	8	44
Purchase commitments ⁽⁵⁾	129	90	39	—	—
U.S. tax reform toll-charge ⁽⁶⁾	48	5	9	20	14
Total	\$ 7,239	\$ 688	\$ 1,000	\$ 1,164	\$ 4,387

- (1) The rate assumed for the variable interest component of the contractual interest obligation was the rate in effect at December 31, 2019. See Note 9 to the Consolidated Financial Statements for a further discussion of our various borrowing facilities.
- (2) Leases include facility and other lease commitments executed in the normal course of the business included in Note 7 of the Notes to the Consolidated Financial Statements.
- (3) See Note 16 of the Notes to the Consolidated Financial Statements for a further discussion of our retirement plans. Anticipated funding obligations are based on current actuarial assumptions. The projected contributions beyond fiscal year 2022 are not currently determinable.
- (4) Amounts represent expected future benefit payments for our postretirement benefit plans.
- (5) Purchase commitments include agreements for raw material procurement and contractual capital expenditures. Amounts for purchase commitments represent only those items which are based on agreements that are enforceable and legally binding.
- (6) This amount represents the cash portion of the “toll charge” that is payable in installments over eight years beginning in 2018. This amount represents the six remaining installments.

The table above does not include \$68.3 million of the total unrecognized tax benefits for uncertain tax positions and approximately \$14 million of associated accrued interest, and \$46.1 million associated with the deferred tax liability on deemed repatriation. Due to the high degree of uncertainty regarding the timing of potential cash flows, we are unable to make a reasonable estimate of the amount and period in which the remaining liabilities might be paid.

Critical Accounting Policies and Use of Estimates

Our significant accounting policies are more fully described in Note 1 to the Consolidated Financial Statements. As disclosed in Note 1, the preparation of financial statements in conformity with U.S. generally accepted accounting principles (“GAAP”) requires management to make estimates and assumptions that affect reported amounts and accompanying disclosures. These estimates are based on management’s best judgment of current events and actions that we may undertake in the future. Actual results may ultimately differ from these estimates.

Those areas requiring the greatest degree of management judgment or deemed most critical to our financial reporting involve:

Business Combinations. From time to time we enter into strategic acquisitions in an effort to better service existing customers and to attain new customers. When we acquire a controlling financial interest in an entity or group of assets that are determined to meet the definition of a business, we apply the acquisition method described in ASC Topic 805, Business Combinations. In accordance with GAAP, the results of the acquisitions we have completed are reflected in our financial statements from the date of acquisition forward.

We allocate the purchase consideration paid to acquire the business to the assets acquired and liabilities assumed based on estimated fair values at the acquisition date, with the excess of purchase price over the estimated fair value of the net assets acquired recorded as goodwill. If during the measurement period (a period not to exceed twelve months from the acquisition date) we receive additional information that existed as of the acquisition date but at the time of the original allocation described above was unknown to us, we make the appropriate adjustments to the purchase price allocation in the reporting period in which the amounts are determined.

Significant judgment is required to estimate the intangibles and fair value of fixed assets and in assigning their respective useful lives. Accordingly, we typically engage third-party valuation specialists, who work under the direction of management, to assist in valuing significant tangible and intangible assets acquired.

The fair value estimates are based on available historical information, future expectations and assumptions deemed reasonable by management, but are inherently uncertain.

We typically use an income method to estimate the fair value of intangible assets, which is based on forecasts of the expected future cash flows attributable to the respective assets. Significant estimates and assumptions inherent in the valuations reflect a consideration of other marketplace participants, and include the amount and timing of future cash flows (including expected growth rates, discount rate and profitability), royalty rates used in the relief of royalty method, customer attrition rates, product obsolescence factors, a brand’s relative market position and the discount rate applied to the cash flows. Unanticipated market or macroeconomic events and circumstances may occur, which could affect the accuracy or validity of the estimates and assumptions.

Determining the useful life of an intangible asset also requires significant judgment. All of our acquired intangible assets (e.g., trademarks, product formulas, non-compete agreements and customer relationships) are expected to have finite useful lives. Our estimates of the useful lives of finite-lived intangible assets are based on a number of factors including competitive environment, market share, brand history, operating plans and the macroeconomic environment of the regions in which the brands are sold.

The costs of finite-lived intangible assets are amortized through expense over their estimated lives. The value of residual goodwill is not amortized, but is tested at least annually for impairment as described in the following note. For acquired intangible assets, the remaining useful life of the trade names and trademarks, product formulas, and customer relationships was estimated at the point at which substantially all of the present value of cumulative cash flows have been earned.

The periodic assessment of potential impairment of goodwill. We currently have goodwill of \$5.5 billion, of which \$4.3 billion relates to our acquisition of Frutarom. We test goodwill for impairment at the reporting unit level as of November 30 every year or more frequently if events or changes in circumstances indicate the asset might be impaired. A reporting unit is an operating segment or one level below an operating segment (referred to as a component) to which goodwill is assigned when initially recorded.

We identify our reporting units by assessing whether the components of our operating segments constitute businesses for which discrete financial information is available and management of each operating segment regularly reviews the operating results of those components. We have identified nine reporting units under the Taste, Scent and Frutarom Segments: (1) Flavor Compounds, (2) Fragrance Compounds, (3) Fragrance Ingredients, (4) Cosmetic Actives Ingredients, (collectively, the "IFF Legacy Reporting Units"), (5) Taste, (6) Savory, (7) Natural Product Solutions, (8) Frutarom Fragrance and Fine Ingredients and (9) Inclusions, (collectively, the "Frutarom Reporting Units").

When testing goodwill for impairment, we have the option of first performing a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than the carrying amount. If we elect to bypass the qualitative assessment for any reporting units, or if a qualitative assessment indicates it is more likely than not that the estimated carrying value of a reporting unit exceeds its fair value, we perform a quantitative goodwill impairment test.

Under the quantitative goodwill impairment test, if a reporting unit's carrying amount exceeds its fair value, we will record an impairment charge based on that difference and the impairment charge will be limited to the amount of goodwill allocated to that reporting unit.

These factors may affect individual reporting units disproportionately, relative to the Company as a whole. As a result, the performance of one or more of the reporting units could decline, resulting in an impairment of goodwill or intangible assets.

For the annual impairment test performed as of November 30, 2019, we did not utilize the optional qualitative test and performed an annual goodwill impairment test for all nine of our reporting units by performing the quantitative test.

Determining the fair value of our reporting units for goodwill requires significant estimates and judgments by management. We assessed the fair value of the reporting units using an income approach. Under the income approach, we determine the fair value by using a discounted cash flow method at a rate of return that reflects the relative risk of the cash flows, projecting future cash flows of each reporting unit, as well as a terminal value. We use the most current actual and forecasted operating data available and key estimates and assumptions used in these valuations include revenue growth rates and profit margins based on our internal forecasts, our relevant weighted-average cost of capital used to discount future cash flows, market assumptions and our historical operating trends.

In order to further validate the reasonableness of the estimated fair values of the reporting units as of the valuation date, a reconciliation of the aggregate fair values of all reporting units to market capitalization was performed using a reasonable control premium.

There was no impairment of goodwill at any one of our nine reporting units in 2019. Based on the annual impairment test performed at November 30, 2019, we determined that IFF Legacy Reporting Units fair values exceeded their respective carrying values by over 200%, with the exception of one reporting unit that had 80% excess fair value over carrying value. In the analysis performed for the Frutarom Reporting Units, there was less than 10% excess fair value over carrying value for two reporting units. The fair values of the remaining Frutarom Reporting Units exceeded their respective carrying values by a range of approximately 10% to 55%.

For the reporting units with less than 10% excess fair value, the Savory reporting unit had excess fair value over carrying value of 8.3% and the Taste reporting unit had excess fair value over carrying value of 7.5%. While management believes that the assumptions used in the impairment test were reasonable, changes in key assumptions, including, lower revenue growth, lower operating margin, lower terminal growth rates or increasing discount rates could result in a future impairment.

If current long-term projections for these reporting units are not realized or materially decrease, we may be required to write-off all or a portion of the goodwill. Such charge could have a material effect on the Consolidated Statements of Operations and Balance Sheets.

Using the income approach and holding other assumptions constant, the following table provides the impact on the headroom by hypothetically changing key assumptions on a standalone basis for the Company's Savory and Taste reporting units as of November 30, 2019:

(DOLLARS IN MILLIONS)	Goodwill	Key Assumptions		Existing Headroom	Resulting Headroom	
		Discount Rate	Terminal Growth		50 bps Increase in Discount Rate	50 bps Decline in Terminal Growth
Savory	\$ 1,205	7.5%	3.0%	8.3%	(3.4)%	(0.3)%
Taste	1,662	7.5%	3.0%	7.5%	(3.6)%	(0.9)%

The periodic assessment of potential impairment of long-lived assets. We review long-lived assets for impairment when events or changes in business conditions indicate that their full carrying value may not be recovered. An estimate of undiscounted future cash flows produced by an asset or group of assets is compared to the carrying value to determine whether impairment exists. If assets are determined to be impaired, the loss is measured based on an estimate of fair value using various valuation techniques, including a discounted estimate of future cash flows.

The analysis and evaluation of income taxes. We account for taxes under the asset and liability method. Under this method, deferred income taxes are recognized for temporary differences between the financial statement and tax return bases of assets and liabilities. A valuation allowance is recognized if, based on the weight of available evidence, it is more likely than not that some portion or all of the deferred tax asset will not be realized. The assessment of the need for a valuation allowance requires management to make estimates and assumptions about future earnings, reversal of existing temporary differences and available tax planning strategies. If actual experience differs from these estimates and assumptions, the recorded deferred tax asset may not be fully realized resulting in an increase to income tax expense in our results of operations.

We are subject to income taxes in the U.S. and numerous foreign jurisdictions. Significant judgment is required in evaluating our uncertain tax positions and determining our provision for income taxes. We first determine whether it is "more likely than not" that we would sustain our tax position if the relevant tax authority were to audit the position with full knowledge of all the relevant facts and other information. For those tax positions that meet this threshold, we measure the amount of tax benefit based on the largest amount of tax benefit that we have a greater than 50% chance of realizing in a final settlement with the relevant authority. Those tax positions failing to qualify for initial recognition are recognized in the first interim period in which they meet the more likely than not standard. This evaluation is made at the time that we adopt a tax position and whenever there is new information and is based upon management's evaluation of the facts, circumstances and information available at the reporting date. We maintain a cumulative risk portfolio relating to all of our uncertainties in income taxes in order to perform this analysis, but the evaluation of our tax positions requires significant judgment and estimation in part because, in certain cases, tax law is subject to varied interpretation, and whether a tax position will ultimately be sustained may be uncertain. We do not currently believe that any of our pending tax assessments, even if ultimately resolved against us, would have a material impact on our results of operations and cash flows.

Determination of the various assumptions employed in the valuation of pension and retiree health care expense and associated obligations. Amounts recognized in the Consolidated Financial Statements related to pension and other postretirement benefits are determined from actuarial valuations. Inherent in such valuations are assumptions including expected return on plan assets, discount rates at which the liabilities could be settled, rates of increase in future compensation levels, mortality rates and health care cost trend rates. These assumptions are updated annually and are disclosed in Note 16 to the Consolidated Financial Statements. In accordance with GAAP, actual results that differ from the assumptions are accumulated and amortized over future periods and, therefore, affect expense recognized and obligations recorded in future periods.

We consider a number of factors in determining and selecting assumptions for the overall expected long-term rate of return on plan assets. We consider the historical long-term return experience of our assets, the current and expected allocation of our plan assets, and expected long-term rates of return. We derive these expected long-term rates of return with the assistance of our investment advisors. We base our expected allocation of plan assets on a diversified portfolio consisting of domestic and international equity securities, fixed income, real estate, and alternative asset classes.

We consider a variety of factors in determining and selecting our assumptions for the discount rate at December 31. For the U.S. plans, the discount rate was based on the internal rate of return for a portfolio of high quality bonds rated Aa or higher by either Moody's or Standard & Poor's with maturities that are consistent with the projected future benefit payment obligations of the plan. For the Non-U.S. Plans, the discount rates were determined by region and are based on high quality long-term corporate bonds. Consideration has been given to the duration of the liabilities in each plan when selecting the bonds

to be used in determining the discount rate. The rate of compensation increase for all plans and the medical cost trend rate for the applicable U.S. plans are based on plan experience.

With respect to the U.S. plans, the expected rate of return on plan assets was determined based on an asset allocation model using the current target allocation, real rates of return by asset class and an anticipated inflation rate. The target asset allocation consists of approximately: 20% in equity securities and 80% in fixed income securities. The plan has achieved a compounded annual rate of return of 5.0% over the previous 20 years. At December 31, 2019, the actual asset allocation for the U.S. plan was: 1% cash and cash equivalents, 13% in equity securities and 86% in fixed income securities.

The expected rate of return for the non-U.S. plans employs a similar set of criteria adapted for local investments, inflation rates and in certain cases specific government requirements. The target asset allocation, for the non-U.S. plans, consists of approximately: 35% in fixed income securities; 35% in alternative investments; 15% in equity securities; and 15% in real estate. At December 31, 2019, the actual asset allocation for the non-U.S. plan was: 37% in fixed income investments; 14% in equity investments; 8% in real estate investments, 1% in cash and cash equivalents and 40% in alternative investments.

Changes in pension and associated expenses may occur in the future due to changes in these assumptions. The impact that a 0.25% decrease in the discount rate or long-term rate of return would have on our pension expense is as follows:

	Sensitivity of Disclosures to Changes in Selected Assumptions			
	25 BP Decrease in Discount Rate		25 BP Decrease in Long-Term Rate of Return	
	Change in PBO	Change in ABO	Change in pension expense	Change in pension expense
<i>(DOLLARS IN THOUSANDS)</i>				
U.S. Pension Plans	\$ 14,613	\$ 14,534	\$ (102)	\$ 1,248
Non-U.S. Pension Plans	55,415	55,374	2,687	1,935

The ongoing assessment of the valuation of inventory, given the large number of natural ingredients employed, the quality of which may be diminished over time. We hold a majority of our inventory as raw materials, providing the greatest degree of flexibility in manufacture and use. As of December 31, 2019, we maintained 50% of our inventory as raw materials. Materials are evaluated based on shelf life, known uses and anticipated demand based on forecasted customer order activity and changes in product/sales mix. Management policy provides for an ongoing assessment of inventory with adjustments recorded when an item is deemed to be slow moving or obsolete.

Accounting for Redeemable Noncontrolling Interest. The non-controlling interests that are reflected as redeemable non-controlling interests in our consolidated financial statements consist of those owners, including us, who have certain redemption rights, whether currently exercisable or not, and which currently, or in the future, require that we purchase or the owner sell the non-controlling interest held by the owner, if certain conditions are met and the owners request the purchase. We also have a call right which could be exercised when such conditions are met. We assumed these interests through some of our subsidiaries. Such noncontrolling interests are reported in the Consolidated Balance Sheet between liabilities and equity, as redeemable noncontrolling interest. We adjust the redeemable noncontrolling interests when the redemption value exceeds the carrying value with changes recognized as an adjustment to additional paid-in capital. Accounting for redeemable non-controlling interest involve judgment and complexity, specifically on the classification of the non-controlling interest in our consolidated balance sheet. Further, there is significant judgment involved in determining whether an equity instrument is currently redeemable or not currently redeemable but probable that the equity instrument will become redeemable. Estimating the redemption value of the redeemable non-controlling interests requires the use of significant assumptions and estimates. Changes in these assumptions and estimates can have a significant impact on the calculation of the redemption value.

Overall, we believe that we have considered relevant circumstances that we may be currently subject to, and the financial statements accurately reflect our best estimate of the impact of these items in our results of operations, financial condition and cash flows for the years presented. We have discussed the decision process and selection of these critical accounting policies with the Audit Committee of the Board of Directors.

New Accounting Standards

Please refer to Note 1 to the Consolidated Financial Statements for a discussion of recent accounting pronouncements.

Non-GAAP Financial Measures

We use non-GAAP financial measures in this Form 10-K, including: (i) currency neutral metrics, (ii) adjusted gross margin, (iii) adjusted operating profit and adjusted operating margin, (iv) adjusted selling and administrative expenses, and

(v) adjusted effective tax rate. We also provide the non-GAAP measures adjusted EBITDA and net debt solely for the purpose of providing information on the extent to which we are in compliance with debt covenants contained in its debt agreements. Our non-GAAP financial measures are defined below.

These non-GAAP financial measures are intended to provide additional information regarding our underlying operating results and comparable year-over-year performance. Such information is supplemental to information presented in accordance with GAAP and is not intended to represent a presentation in accordance with GAAP. In discussing our historical and expected future results and financial condition, we believe it is meaningful for investors to be made aware of and to be assisted in a better understanding of, on a period-to-period comparable basis, financial amounts both including and excluding these identified items, as well as the impact of exchange rate fluctuations. These non-GAAP measures should not be considered in isolation or as substitutes for analysis of our results under GAAP and may not be comparable to other companies' calculation of such metrics.

Currency neutral metrics eliminate the effects that result from translating international currency to U.S. dollars. We calculate currency neutral numbers by comparing current year results to the prior year results restated at exchange rates in effect for the current year based on the currency of the underlying transaction.

Adjusted gross margin excludes operational improvement initiatives, integration related costs, FDA mandated product recall and Frutarom acquisition related costs.

Adjusted operating profit and adjusted operating margin excludes operational improvement initiatives, acquisition related costs, integration related costs, restructuring and other charges, net, losses (gains) on sale of assets, FDA mandated product recall, Frutarom acquisition related costs, compliance review & legal defense costs and N&B transaction related costs.

Adjusted selling and administrative expenses excludes acquisition related costs, integration related costs, Frutarom acquisition related costs, compliance review & legal defense costs and N&B transaction related costs.

Adjusted effective tax rate excludes operational improvement initiatives, acquisition related costs, integration related costs, restructuring and other charges, net, losses (gains) on sale of assets, FDA mandated product recall, U.S. tax reform, Frutarom acquisition related costs, compliance review & legal defense costs, N&B merger related costs and redemption value adjustment to EPS.

Net Debt to Combined Adjusted EBITDA is the leverage ratio used in our credit agreement and defined as Net Debt (which is long-term debt less cash and cash equivalents) divided by Combined Adjusted EBITDA. However, as Adjusted EBITDA for these purposes was calculated in accordance with the provisions of the credit agreement, it may differ from the calculation used for other purposes.

A. Reconciliation of Non-GAAP Metrics

Reconciliation of Gross Profit

<i>(DOLLARS IN THOUSANDS)</i>	Year Ended December 31,	
	2019	2018
Reported (GAAP)	\$ 2,112,748	\$ 1,682,707
Operational Improvement Initiatives (a)	2,267	1,650
Integration Related Costs (c)	730	102
FDA Mandated Product Recall (e)	250	(7,125)
Frutarom Acquisition Related Costs (g)	4,247	23,550
Adjusted (Non-GAAP)	\$ 2,120,242	\$ 1,700,884

Reconciliation of Selling and Administrative Expenses

<i>(DOLLARS IN THOUSANDS)</i>	Year Ended December 31,	
	2019	2018
Reported (GAAP)	\$ 876,121	\$ 707,461
Acquisition Related Costs (b)	—	1,289
Integration Related Costs (c)	(53,481)	(6,060)
Frutarom Acquisition Related Costs (g)	(1,693)	(66,082)
Compliance Review & Legal Defense Costs (h)	(11,314)	—
N&B Transaction Related Costs (i)	(20,747)	—
Adjusted (Non-GAAP)	\$ 788,886	\$ 636,608

Reconciliation of Operating Profit

<i>(DOLLARS IN THOUSANDS)</i>	Year Ended December 31,	
	2019	2018
Reported (GAAP)	\$ 665,270	\$ 583,882
Operational Improvement Initiatives (a)	2,267	2,169
Acquisition Related Costs (b)	—	(1,289)
Integration Related Costs (c)	55,160	7,188
Restructuring and Other Charges, net (d)	29,765	4,086
Losses (Gains) on Sale of Assets	2,367	(1,177)
FDA Mandated Product Recall (e)	250	(7,125)
Frutarom Acquisition Related Costs (g)	5,940	89,632
Compliance Review & Legal Defense Costs (h)	11,314	—
N&B Transaction Related Costs (i)	20,747	—
Adjusted (Non-GAAP)	\$ 793,080	\$ 677,366

Reconciliation of Net Income and EPS

Year Ended December 31,

	2019				2018			
	Income before taxes	Taxes on income (k)	Net Income Attributable to IFF (l)	Diluted EPS (m)	Income before taxes	Taxes on income (k)	Net Income Attributable to IFF (l)	Diluted EPS (m)
<i>(DOLLARS IN THOUSANDS)</i>								
Reported (GAAP)	\$ 557,452	\$ 97,184	\$ 455,873	\$ 4.00	\$ 447,757	\$ 107,976	\$ 337,302	\$ 3.79
Operational Improvement Initiatives (a)	2,267	610	1,657	0.01	2,169	694	1,475	0.02
Acquisition Related Costs (b)	(3,371)	—	(3,371)	(0.03)	(1,289)	(311)	(978)	(0.01)
Integration Related Costs (c)	55,160	12,461	42,699	0.38	7,188	1,397	5,791	0.07
Restructuring and Other Charges, net (d)	29,765	6,797	22,968	0.20	4,086	1,020	3,066	0.03
Losses (Gains) on Sale of Assets	2,367	572	1,795	0.02	(1,177)	(352)	(825)	(0.01)
FDA Mandated Product Recall (e)	250	57	193	—	(7,125)	(1,601)	(5,524)	(0.06)
U.S. Tax Reform (f)	—	—	—	—	—	(25,345)	25,345	0.29
Frutarom Acquisition Related Costs (g)	5,940	794	5,146	0.05	155,569	28,490	127,079	1.44
Compliance Review & Legal Defense Costs (h)	11,314	2,522	8,792	0.08	—	—	—	—
N&B Transaction Related Costs (i)	20,747	2,354	18,393	0.16	—	—	—	—
Redemption value adjustment to EPS (j)	—	—	—	0.02	—	—	—	0.03
Adjusted (Non-GAAP)	\$ 681,891	\$ 123,351	\$ 554,145	\$ 4.88	\$ 607,178	\$ 111,968	\$ 492,731	\$ 5.58

- (a) For 2019, represents accelerated depreciation related to plant relocations in India and China. For 2018, represents accelerated depreciation in India and Taiwan asset write off.
- (b) For 2019, represents adjustments to the fair value for an equity method investment in Canada which we began consolidating in the second quarter. For 2018, represents adjustments to the contingent consideration payable for PowderPure, and transaction costs related to Fragrance Resources and PowderPure within Selling and administrative expenses.
- (c) Represents costs related to the integration of the Frutarom acquisition, principally advisory services.
- (d) For 2019, represents costs primarily related to the Frutarom Integration Initiative and the 2019 Severance Program, including severance related to outsourcing the IT function. For 2018, represents severance costs related to the 2017 Productivity Program and costs associated with the termination of agent relationships in a subsidiary.
- (e) For 2019, represents additional claims that management will pay to co-packers. For 2018, principally represents recoveries from the supplier for the third and fourth quarter, partially offset by final payments to the customer made for the effected product in the first quarter.
- (f) Represents charges incurred related to enactment of certain U.S tax legislation changes in December 2017.
- (g) Represents transaction-related costs and expenses related to the acquisition of Frutarom. For 2019, amount primarily includes amortization for inventory "step-up" costs and transaction costs. For 2018, amount primarily includes \$23.5 million of amortization for inventory "step-up" costs, \$39.4 million of bridge loan commitment fees included in Interest expense; \$34.9 million make whole payment on the Senior Notes - 2007 and \$3.9 million realized loss on a fair value hedge included in Loss on extinguishment of debt; \$12.5 million realized gain on a foreign currency derivative included in Other income; and \$66.0 million of transaction costs included in Selling and administrative expenses.
- (h) Costs related to reviewing the nature of inappropriate payments and review of compliance in certain other countries. In addition, includes legal costs for related shareholder lawsuits.
- (i) Represents costs and expenses related to the pending transaction with Nutrition & Biosciences Inc.
- (j) Represents the adjustment to EPS related to the excess of the redemption value of certain redeemable noncontrolling interests over their existing carrying value.

- (k) The income tax expense (benefit) on non-GAAP adjustments is computed in accordance with ASC 740 using the same methodology as the GAAP provision of income taxes. Income tax effects of non-GAAP adjustments are calculated based on the applicable statutory tax rate for each jurisdiction in which such charges were incurred, except for those items which are non-taxable for which the tax expense (benefit) was calculated at 0%. For fiscal year 2019, these non-GAAP adjustments were not subject to foreign tax credits or valuation allowances, but to the extent that such factors are applicable to any future non-GAAP adjustments we will take such factors into consideration in calculating the tax expense (benefit).
- (l) For 2019 and 2018, net income is reduced by income attributable to noncontrolling interest of \$4.4M and \$2.5M, respectively.
- (m) The sum of these items does not foot due to rounding.

B. Foreign Currency Reconciliation

	Operating Profit	
	Year Ended December 31,	
	2019	2018
% Change - Reported (GAAP)	14%	6%
Items impacting comparability ⁽¹⁾	3%	4%
% Change - Adjusted (Non-GAAP)	17%	10%
Currency Impact	2%	(3)%
% Change Year-over-Year - Currency Neutral Adjusted (Non-GAAP)^{(2)**}	20%	7%

⁽¹⁾ Includes items impacting comparability of \$127.8 million for the year ended December 31, 2019 and includes \$93.5 million of items impacting comparability for the year ended December 31, 2018.

⁽²⁾ 2019 item does not foot due to rounding.

** Currency neutral amount is calculated by translating prior year amounts at the exchange rates used for the corresponding 2019 period. Currency neutral operating profit also eliminates the year-over-year impact of cash flow hedging.

Cautionary Statement Under the Private Securities Litigation Reform Act of 1995

Statements in this Form 10-K, which are not historical facts or information, are “forward-looking statements” within the meaning of The Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on management’s current assumptions, estimates and expectations and include statements concerning (i) our ability to achieve the anticipated benefits of the Frutarom acquisition, including \$145 million of expected synergies; (ii) our ability to achieve our Vision 2021 strategy of accelerated revenue and profitability growth, (iii) the growth potential of the markets in which we operate, including the emerging markets, (iv) expected capital expenditures in 2020, (v) expectations regarding our 2017 Productivity Program; (vi) expectations regarding the Frutarom Integration Initiative, (vii) the expected costs and benefits of our ongoing optimization of our manufacturing operations, including the expected number of closings, (viii) our pending combination with Dupont’s Nutrition and Biosciences business, including the expected closing date of the transaction, and (ix) our ability to innovate and execute on specific consumer trends and demands. These forward-looking statements should be evaluated with consideration given to the many risks and uncertainties inherent in our business that could cause actual results and events to differ materially from those in the forward-looking statements. Certain of such forward-looking information may be identified by such terms as “expect”, “anticipate”, “believe”, “intend”, “outlook”, “may”, “estimate”, “should”, “predict” and similar terms or variations thereof. Such forward-looking statements are based on a series of expectations, assumptions, estimates and projections about the Company, are not guarantees of future results or performance, and involve significant risks, uncertainties and other factors, including assumptions and projections, for all forward periods. Our actual results may differ materially from any future results expressed or implied by such forward-looking statements. Such risks, uncertainties and other factors include, among others, the following:

- risks related to the integration of the Frutarom business, including whether we will realize the benefits anticipated from the acquisition in the expected time frame;
- unanticipated costs, liabilities, charges or expenses resulting from the Frutarom acquisition;
- our ability to realize expected cost savings and increased efficiencies of the Frutarom integration and our ongoing optimization of our manufacturing facilities;
- the increase in our leverage resulting from the additional debt incurred to pay a portion of the consideration for Frutarom and its impact on our liquidity and ability to return capital to our shareholders;
- our ability to successfully establish and manage acquisitions, collaborations, joint ventures or partnership;

- our ability to successfully market to our expanded and diverse Taste customer base;
- our ability to effectively compete in our market and develop and introduce new products that meet customers' needs;
- our ability to retain key employees;
- changes in demand from large multi-national customers due to increased competition and our ability to maintain "core list" status with customers;
- our ability to successfully develop innovative and cost-effective products that allow customers to achieve their own profitability expectations;
- disruption in the development, manufacture, distribution or sale of our products from natural disasters, public health crises (such as the recent Coronavirus outbreak), international conflicts, terrorist acts, labor strikes, political crisis, accidents and similar events;
- the impact of a disruption in our supply chain, including the inability to obtain ingredients and raw materials from third parties;
- volatility and increases in the price of raw materials, energy and transportation;
- the impact of a significant data breach or other disruption in our information technology systems, and our ability to comply with data protection laws in the U.S. and abroad;
- our ability to comply with, and the costs associated with compliance with, regulatory requirements and industry standards, including regarding product safety, quality, efficacy and environmental impact;
- our ability to react in a timely and cost-effective manner to changes in consumer preferences and demands, including increased awareness of health and wellness;
- our ability to meet consumer, customer and regulatory sustainability standards;
- our ability to benefit from our investments and expansion in emerging markets;
- the impact of currency fluctuations or devaluations in the principal foreign markets in which we operate;
- economic, regulatory and political risks associated with our international operations;
- the impact of global economic uncertainty on demand for consumer products;
- our ability to comply with, and the costs associated with compliance with, U.S. and foreign environmental protection laws;
- our ability to successfully manage our working capital and inventory balances;
- the impact of the failure to comply with U.S. or foreign anti-corruption and anti-bribery laws and regulations, including the U.S. Foreign Corrupt Practices Act;
- any impairment on our tangible or intangible long-lived assets, including goodwill associated with the acquisition of Frutarom;
- our ability to protect our intellectual property rights;
- the impact of the outcome of legal claims, regulatory investigations and litigation;
- changes in market conditions or governmental regulations relating to our pension and postretirement obligations;
- the impact of changes in federal, state, local and international tax legislation or policies, including the Tax Cuts and Jobs Act, with respect to transfer pricing and state aid, and adverse results of tax audits, assessments, or disputes;
- the impact of the United Kingdom's departure from the European Union;
- the impact of the phase out of the London Interbank Office Rate (LIBOR) on interest expense;
- risks associated with our pending combination with N&B, including business uncertainties and contractual restrictions while the transaction is pending, costs incurred in connection with the transaction, our ability to pursue alternative transactions, and the impact if we fail to complete the transaction; and
- risks associated with the integration of N&B if we are successful in completing the transaction, including whether we will realize the anticipated synergies and other benefits of the transaction.

The foregoing list of important factors does not include all such factors, nor necessarily present them in order of importance. In addition, you should consult other disclosures made by the Company (such as in our other filings with the

Securities and Exchange Commission (“SEC”) or in company press releases) for other factors that may cause actual results to differ materially from those projected by the Company. Please refer to Part I. Item 1A., Risk Factors, of this Form 10-K for additional information regarding factors that could affect our results of operations, financial condition and liquidity.

We intend our forward-looking statements to speak only as of the time of such statements and do not undertake or plan to update or revise them as more information becomes available or to reflect changes in expectations, assumptions or results. We can give no assurance that such expectations or forward-looking statements will prove to be correct. An occurrence of, or any material adverse change in, one or more of the risk factors or risks and uncertainties referred to in this report or included in our other periodic reports filed with the SEC could materially and adversely impact our operations and our future financial results.

Any public statements or disclosures made by us following this report that modify or impact any of the forward-looking statements contained in or accompanying this report will be deemed to modify or supersede such outlook or other forward-looking statements in or accompanying this report.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

We operate on a global basis and are exposed to currency fluctuation related to the manufacture and sale of our products in currencies other than the U.S. dollar. The major foreign currencies involve the markets in the European Union, Great Britain, Mexico, Brazil, China, India, Indonesia, Australia, Russia and Japan, although all regions are subject to foreign currency fluctuations versus the U.S. dollar. We actively monitor our foreign currency exposures in all major markets in which we operate, and employ a variety of techniques to mitigate the impact of exchange rate fluctuations, including foreign currency hedging activities.

We have established a centralized reporting system to evaluate the effects of changes in interest rates, currency exchange rates and other relevant market risks. Our risk management procedures include the monitoring of interest rate and foreign exchange exposures and hedge positions utilizing statistical analyses of cash flows, market value and sensitivity analysis. However, the use of these techniques to quantify the market risk of such instruments should not be construed as an endorsement of their accuracy or the accuracy of the related assumptions. For the year ended December 31, 2019, our exposure to market risk was estimated using sensitivity analyses, which illustrate the change in the fair value of a derivative financial instrument assuming hypothetical changes in foreign exchange rates and interest rates.

We enter into foreign currency forward contracts with the objective of reducing exposure to cash flow volatility associated with foreign currency receivables and payables, and with anticipated purchases of certain raw materials used in operations. These contracts, the counterparties to which are major international financial institutions, generally involve the exchange of one currency for a second currency at a future date, and have maturities not exceeding twelve months. The gain or loss on the hedging instrument and services is recorded in earnings at the same time as the transaction being hedged is recorded in earnings. At December 31, 2019, our foreign currency exposures pertaining to derivative contracts exist with the Euro, Japanese Yen, British Pound, Australian Dollar and Indonesian Rupiah. Based on a hypothetical decrease or increase of 10% in the applicable balance sheet exchange rates (primarily against the U.S. dollar), the estimated fair value of our foreign currency forward contracts would increase by approximately \$10 million. However, any change in the value of the contracts, real or hypothetical, would be significantly offset by a corresponding change in the value of the underlying hedged items.

We use derivative instruments as part of our interest rate risk management strategy. We have entered into certain cross currency swap agreements in order to mitigate a portion of our net European investments from foreign currency risk. As of December 31, 2018, these swaps were in a net liability position with an aggregate fair value of \$4.2 million. Based on a hypothetical decrease or increase of 10% in the value of the U.S. dollar against the Euro, the estimated fair value of our cross currency swaps would change by approximately \$60 million.

At December 31, 2019, the fair value of our EUR fixed rate debt was €1.9 billion. Based on a hypothetical decrease or increase of 10% in foreign exchange rates, the estimated fair value of our EUR fixed debt would change by approximately \$200 million.

At December 31, 2019, the fair value of our USD fixed rate debt was \$2.5 billion. Based on a hypothetical decrease or increase of 10% in interest rates, the estimated fair value of our US fixed debt would change by approximately \$250 million.

We purchase certain commodities, such as natural gas, electricity, petroleum based products and certain crop related items. We generally purchase these commodities based upon market prices that are established with the vendor as part of the purchase process. In general, we do not use commodity financial instruments to hedge commodity prices.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

See index to Consolidated Financial Statements on page 61. See Item 6 on page 32 for supplemental quarterly data.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures and Changes in Internal Control over Financial Reporting.

Our Chief Executive Officer and Chief Financial Officer, with the assistance of other members of our management, have evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Form 10-K. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures are effective as of the end of the period covered by this Form 10-K.

We have established controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission’s rules and forms and is accumulated and communicated to management, including the principal executive officer and the principal financial officer, to allow timely decisions regarding required disclosure.

Our Chief Executive Officer and Chief Financial Officer have concluded that there have not been any changes in our internal control over financial reporting during the fourth quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management’s Report on Internal Control Over Financial Reporting.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. Our 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.

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.

Management assessed the effectiveness of our internal control over financial reporting as of January 3, 2020. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in its 2013 *Internal Control — Integrated Framework*.

Based on this assessment, management determined that, as of January 3, 2020, our internal control over financial reporting was effective.

PricewaterhouseCoopers LLP, our independent registered public accounting firm, has audited the effectiveness of our internal control over financial reporting as of January 3, 2020 as stated in their report which is included herein.

ITEM 9B. OTHER INFORMATION.

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

The information relating to directors and nominees of the Company is set forth in the IFF 2020 Proxy Statement and is incorporated by reference herein. The information relating to Section 16(a) beneficial ownership reporting compliance that appears in the IFF 2020 Proxy Statement is also incorporated by reference herein. See Part I, Item 1 of this Form 10-K for information relating to the Company's Executive Officers.

We have adopted a Code of Business Conduct and Ethics (the "Code of Ethics") that applies to all of our employees, including our chief executive officer and our chief financial officer (who is also our principal accounting officer). We have also adopted a Code of Conduct for Directors and a Code of Conduct for Executive Officers (together with the Code of Ethics, the "Codes"). The Codes are available through the Investors — Corporate Governance link on our website www.iff.com.

Only the Board of Directors or the Audit Committee of the Board may grant a waiver from any provision of our Codes in favor of a director or executive officer, and any such waiver will be publicly disclosed. We will disclose substantive amendments to and any waivers from the Codes provided to our chief executive officer and principal financial officer (principal accounting officer), as well as any other executive officer or director, on the Company's website: www.iff.com.

The information regarding the Company's Audit Committee and its designated audit committee financial experts is set forth in the IFF 2020 Proxy Statement and such information is incorporated by reference herein.

The information concerning procedures by which shareholders may recommend director nominees is set forth in the IFF 2020 Proxy Statement and such information is incorporated by reference herein.

ITEM 11. EXECUTIVE COMPENSATION.

The items required by Part III, Item 11 are incorporated herein by reference from the IFF 2020 Proxy Statement to be filed on or before May 4, 2020.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.

The items required by Part III, Item 12 are incorporated herein by reference from the IFF 2020 Proxy Statement to be filed on or before May 4, 2020.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.

The items required by Part III, Item 13 are incorporated herein by reference from the IFF 2020 Proxy Statement to be filed on or before May 4, 2020.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

The items required by Part III, Item 14 are incorporated herein by reference from the IFF 2020 Proxy Statement to be filed on or before May 4, 2020.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a)(1) FINANCIAL STATEMENTS: The following consolidated financial statements, related notes, and independent registered public accounting firm's report are included in this Form 10-K:

Report of Independent Registered Public Accounting Firm	62
Consolidated Statement of Income and Comprehensive Income for the years ended December 31, 2019, 2018 and 2017	64
Consolidated Balance Sheet as of December 31, 2019 and 2018	65
Consolidated Statement of Cash Flows for the years ended December 31, 2019, 2018 and 2017	66
Consolidated Statement of Shareholders' Equity for the years ended December 31, 2019, 2018 and 2017	67
Notes to Consolidated Financial Statements	69

(a)(3) EXHIBITS	122
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(a)(2) FINANCIAL STATEMENT SCHEDULES

Schedule II — Valuation and Qualifying Accounts and Reserves for the years ended December 31, 2019, 2018 and 2017	S-1
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All other schedules are omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of International Flavors & Fragrances Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheet of International Flavors & Fragrances Inc. and its subsidiaries (the “Company”) as of January 3, 2020 and December 28, 2018, and the related consolidated statements of income and comprehensive income, of shareholders' equity and of cash flows for each of the three years in the period ended January 3, 2020, including the related notes and schedule of valuation and qualifying accounts and reserves for each of the three years in the period ended January 3, 2020 appearing on S-1 (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of January 3, 2020, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of January 3, 2020 and December 28, 2018, and the results of its operations and its cash flows for each of the three years in the period ended January 3, 2020 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of January 3, 2020, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and 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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the

company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

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

Goodwill Impairment Assessment - Frutarom Taste, Savory, Natural Product Solutions, Frutarom Fragrance and Fine Ingredients and Inclusions Reporting Units

As described in Notes 1 and 5 to the consolidated financial statements, the Company's consolidated goodwill balance was \$5.5 billion as of January 3, 2020, and the goodwill associated with the Frutarom Segment, consisting of the Taste, Savory, Natural Product Solutions, Frutarom Fragrance and Fine Ingredients and Inclusions reporting units (collectively, the "Frutarom Reporting Units") was \$4.3 billion. Management tests goodwill for impairment at the reporting unit level as of November 30 every year or more frequently if events or changes in circumstances indicate the asset might be impaired. Fair value is estimated by management using a discounted cash flow model. Management determines the fair value of reporting units, including the Frutarom Reporting Units, using key assumptions including revenue growth rates, profit margins and the specific weighted-average cost of capital used to discount future cash flows.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment of the Frutarom Reporting Units is a critical audit matter are there was significant judgment by management when developing the fair value measurement of the Frutarom Reporting Units. This in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and in evaluating audit evidence relating to management's cash flow projections, including significant assumptions for the revenue growth rates, profit margins and the specific weighted-average cost of capital used to discount future cash flows. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the valuation of the Company's Frutarom Reporting Units. These procedures also included, among others, testing management's process for developing the fair value estimate. This included evaluating the appropriateness of the discounted cash flow model; testing the completeness, accuracy, and relevance of underlying data used in the model; and evaluating the significant assumptions used by management, including the revenue growth rates, profit margins and the specific weighted-average cost of capital used to discount future cash flows. Evaluating management's assumptions related to the revenue growth rates and profit margins involved evaluating whether the assumptions used by management were reasonable considering (i) the current and past performance of the Frutarom Reporting Units, (ii) the consistency with external market and industry data, and (iii) whether the assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in the evaluation of the appropriateness of the Company's discounted cash flow model and the reasonableness of certain assumptions used by management, including the specific weighted-average cost of capital used to discount future cash flows.

/s/ PricewaterhouseCoopers LLP

New York, New York

March 3, 2020

We have served as the Company's auditor since 1957.

INTERNATIONAL FLAVORS & FRAGRANCES INC.
CONSOLIDATED STATEMENT OF INCOME AND COMPREHENSIVE INCOME

Year Ended December 31,

(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)

	2019	2018	2017
Net sales	\$ 5,140,084	\$ 3,977,539	\$ 3,398,719
Cost of goods sold	3,027,336	2,294,832	1,926,256
Gross profit	2,112,748	1,682,707	1,472,463
Research and development expenses	346,128	311,583	295,469
Selling and administrative expenses	876,121	707,461	570,144
Restructuring and other charges, net	29,765	5,079	19,711
Amortization of acquisition-related intangibles	193,097	75,879	34,693
Losses (gains) on sale of assets	2,367	(1,177)	(184)
Operating profit	665,270	583,882	552,630
Interest expense	138,221	132,558	65,363
Loss on extinguishment of debt	—	38,810	—
Other income, net	(30,403)	(35,243)	(49,778)
Income before taxes	557,452	447,757	537,045
Taxes on income	97,184	107,976	241,380
Net income	460,268	339,781	295,665
Net income attributable to noncontrolling interests	4,395	2,479	—
Net income attributable to IFF stockholders	455,873	337,302	295,665
Other comprehensive income:			
Foreign currency translation adjustments	23,953	(99,580)	54,609
Gains (losses) on derivatives qualifying as hedges	(2,678)	15,078	(17,936)
Pension and postretirement liability adjustment	(35,942)	19,757	5,940
Comprehensive income attributable to IFF stockholders	\$ 441,206	\$ 272,557	\$ 338,278
Net income per share — basic	\$ 4.05	\$ 3.81	\$ 3.73
Net income per share — diluted	\$ 4.00	\$ 3.79	\$ 3.72
Average number of shares outstanding - basic	111,966	87,551	79,070
Average number of shares outstanding - diluted	113,307	88,121	79,370

See Notes to Consolidated Financial Statements

INTERNATIONAL FLAVORS & FRAGRANCES INC.
CONSOLIDATED BALANCE SHEET

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 606,823	\$ 634,897
Restricted cash	17,122	13,625
Receivables:		
Trade	884,428	946,938
Allowance for doubtful accounts	(8,231)	(9,173)
Inventories	1,123,068	1,078,537
Prepaid expenses and other current assets	319,334	277,036
Total Current Assets	2,942,544	2,941,860
Property, plant and equipment, net	1,386,920	1,241,152
Goodwill	5,497,596	5,378,388
Other intangible assets, net	2,851,935	3,039,322
Other assets	608,416	288,673
Total Assets	\$ 13,287,411	\$ 12,889,395
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current Liabilities:		
Bank borrowings, overdrafts and current portion of long-term debt	\$ 384,958	\$ 48,642
Accounts payable	510,372	471,382
Dividends payable	80,038	77,779
Other current liabilities	576,822	530,508
Total Current Liabilities	1,552,190	1,128,311
Other Liabilities:		
Long-term debt	3,997,438	4,504,417
Retirement liabilities	265,370	227,172
Deferred income taxes	641,456	655,879
Other liabilities	502,366	248,436
Total Other Liabilities	5,406,630	5,635,904
Commitments and Contingencies (Note 21)		
Redeemable noncontrolling interests	99,043	81,806
Shareholders' Equity:		
Common stock 12 1/2¢ par value; 500,000,000 shares authorized; 128,526,137 and 128,526,137 shares issued as of December 31, 2019 and December 31, 2018, respectively; and 106,787,299 and 106,619,202 shares outstanding as of December 31, 2019 and December 31, 2018, respectively	16,066	16,066
Capital in excess of par value	3,823,152	3,793,609
Retained earnings	4,117,804	3,956,221
Accumulated other comprehensive loss:		
Cumulative translation adjustments	(373,043)	(396,996)
Accumulated gains on derivatives qualifying as hedges	2,068	4,746
Pension and postretirement liability adjustment	(345,919)	(309,977)
Treasury stock, at cost (21,738,838 and 21,906,935 shares as of December 31, 2019 and December 31, 2018, respectively)	(1,022,824)	(1,030,718)
Total Shareholders' Equity	6,217,304	6,032,951
Noncontrolling interests	12,244	10,423
Total Shareholders' Equity including noncontrolling interests	6,229,548	6,043,374
Total Liabilities and Shareholders' Equity	\$ 13,287,411	\$ 12,889,395

See Notes to Consolidated Financial Statements

INTERNATIONAL FLAVORS & FRAGRANCES INC.
CONSOLIDATED STATEMENT OF CASH FLOWS

Year Ended December 31,

(DOLLARS IN THOUSANDS)

	2019	2018	2017
Cash flows from operating activities:			
Net income	\$ 460,268	\$ 339,781	\$ 295,665
Adjustments to reconcile to net cash provided by operating activities:			
Depreciation and amortization	323,330	173,792	117,967
Deferred income taxes	(59,279)	19,402	58,889
Losses (gains) on sale of assets	2,367	(1,177)	(184)
Stock-based compensation	34,482	29,401	26,567
Loss on extinguishment of debt	—	38,810	—
Gain on deal contingent derivatives	—	(12,505)	—
Pension contributions	(23,714)	(22,433)	(39,298)
Litigation settlement	—	—	(56,000)
Foreign currency gain on liquidation of entity	—	—	(12,217)
Changes in assets and liabilities, net of acquisitions:			
Trade receivables	59,555	(49,958)	(68,851)
Inventories	(62,129)	(117,641)	(18,911)
Accounts payable	55,464	55,136	29,114
Accruals for incentive compensation	(22,357)	(2,289)	19,144
Other current payables and accrued expenses	5,488	(5,279)	22,679
Other assets	(66,650)	(19,219)	(3,866)
Other liabilities	(7,860)	11,754	20,058
Net cash provided by operating activities	698,965	437,575	390,756
Cash flows from investing activities:			
Cash paid for acquisitions, net of cash received	(49,065)	(4,857,343)	(192,328)
Additions to property, plant and equipment	(235,978)	(170,094)	(128,973)
Additions to intangible assets	(6,070)	(3,326)	—
Proceeds from disposal of assets	42,112	8,176	16,139
Proceeds from disposal of subsidiaries, net of cash held	—	10,157	—
Proceeds from unwinding of cross currency swap derivative instruments	25,900	—	—
Contingent consideration paid	(4,655)	—	—
Maturity of net investment hedges	—	(2,642)	1,434
Proceeds from life insurance contracts	1,890	1,837	3,798
Net cash used in investing activities	(225,866)	(5,013,235)	(299,930)
Cash flows from financing activities:			
Cash dividends paid to shareholders	(313,510)	(230,218)	(206,118)
Decrease in revolving credit facility and short term borrowing	(1,021)	(927)	(4,499)
Deferred financing costs	—	(33,668)	(5,373)
Repayments of debt	(155,261)	(376,625)	(250,000)
Proceeds from issuance of long-term debt	—	3,256,742	498,250
Proceeds from sales of equity securities, net of issuance costs	—	2,268,094	—
Contingent consideration paid	(24,478)	—	—
Gain (loss) on pre-issuance hedges	—	12,505	(5,310)
Proceeds from issuance of stock in connection with stock plans	—	—	329
Employee withholding taxes paid	(10,787)	(9,725)	(11,768)
Purchase of treasury stock	—	(15,475)	(58,069)
Net cash (used in) provided by financing activities	(505,057)	4,870,703	(42,558)
Effect of exchange rate changes on cash and cash equivalents	7,381	(14,567)	(4,214)
Net change in cash, cash equivalents and restricted cash	(24,577)	280,476	44,054
Cash, cash equivalents and restricted cash at beginning of year	648,522	368,046	323,992
Cash, cash equivalents and restricted cash at end of year	\$ 623,945	\$ 648,522	\$ 368,046
Cash paid for:			
Interest, net of amounts capitalized	\$ 133,739	\$ 117,581	\$ 55,440
Income taxes	126,172	116,138	107,390
Noncash investing activities:			
Accrued capital expenditures	\$ 39,466	\$ 33,844	\$ 37,556

INTERNATIONAL FLAVORS & FRAGRANCES INC.
CONSOLIDATED STATEMENT OF SHAREHOLDERS' EQUITY

<i>(DOLLARS IN THOUSANDS)</i>	Common stock	Capital in excess of par value	Retained earnings	Accumulated other comprehensive (loss) income	Treasury stock		Non- controlling interest	Total
					Shares	Cost		
Balance at December 31, 2016	\$ 14,470	\$ 152,481	\$ 3,818,535	\$ (680,095)	(36,645,153)	\$ (1,679,147)	\$ 4,890	\$ 1,631,134
Net income			295,665				202	295,867
Cumulative adjustment relating to the adoption of ASU 2016-16			(33,719)					(33,719)
Cumulative translation adjustment				54,609				54,609
Losses on derivatives qualifying as hedges; net of tax (\$2,017)				(17,936)				(17,936)
Pension liability and postretirement adjustment; net of tax (\$1,583)				5,940				5,940
Cash dividends declared (\$2.66 per share)			(209,860)					(209,860)
Stock options		4,558			24,423	1,208		5,766
Treasury share repurchases					(459,264)	(58,069)		(58,069)
Vested restricted stock units and awards		(20,779)			169,185	9,774		(11,005)
Stock-based compensation		26,567						26,567
Balance at December 31, 2017	\$ 14,470	\$ 162,827	\$ 3,870,621	\$ (637,482)	(36,910,809)	\$ (1,726,234)	\$ 5,092	\$ 1,689,294
Net income			337,302				2,404	339,706
Cumulative adjustment relating to the adoption of ASU 2014-09			2,068					2,068
Cumulative translation adjustment				(99,580)				(99,580)
Gains on derivatives qualifying as hedges; net of tax \$2,011				15,078				15,078
Pension liability and postretirement adjustment; net of tax (\$5,052)				19,757				19,757
Cash dividends declared (\$2.84 per share)			(253,577)					(253,577)
Stock options		2,152			46,474	2,188		4,340
Impact of Frutarom acquisition		1,346,229			14,901,445	701,111	3,700	2,051,040
Vested restricted stock units and awards		(10,650)			164,064	7,692		(2,958)
Stock-based compensation		29,401						29,401
Treasury share repurchases					(108,109)	(15,475)		(15,475)
Issuance of equity	1,596	2,266,498						2,268,094
Redeemable NCI		(2,848)						(2,848)
Dividends paid on noncontrolling interest and other			(193)				(773)	(966)
Balance at December 31, 2018	\$ 16,066	\$ 3,793,609	\$ 3,956,221	\$ (702,227)	(21,906,935)	\$ (1,030,718)	\$ 10,423	\$ 6,043,374

See Notes to Consolidated Financial Statements

<i>(DOLLARS IN THOUSANDS)</i>	Common stock	Capital in excess of par value	Retained earnings	Accumulated other comprehensive (loss) income	Treasury stock		Non- controlling interest	Total
					Shares	Cost		
Net income			455,873				3,729	459,602
Cumulative adjustment relating to the adoption of ASU 2016-02			23,094					23,094
Cumulative adjustment relating to the adoption of ASU 2017-12			(981)	981				—
Cumulative translation adjustment				22,972				22,972
Losses on derivatives qualifying as hedges; net of tax (\$505)				(2,678)				(2,678)
Pension liability and postretirement adjustment; net of tax (\$7,559)				(35,942)				(35,942)
Cash dividends declared (\$2.96 per share)			(315,770)					(315,770)
Stock options		6,966			14,346	677		7,643
Vested restricted stock units and awards		(9,808)			153,751	7,217		(2,591)
Stock-based compensation		34,482						34,482
Redeemable NCI		(2,097)						(2,097)
Dividends paid on noncontrolling interest and other			(633)				(1,908)	(2,541)
Balance at December 31, 2019	\$ 16,066	\$ 3,823,152	\$ 4,117,804	\$ (716,894)	(21,738,838)	\$ (1,022,824)	\$ 12,244	\$ 6,229,548

See Notes to Consolidated Financial Statements

INTERNATIONAL FLAVORS & FRAGRANCES INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. NATURE OF OPERATIONS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Operations International Flavors & Fragrances Inc. and its subsidiaries (the “Registrant,” “IFF,” “the Company,” “we,” “us” and “our”) is a leading creator and manufacturer of taste, scent and complementary adjacent products, including cosmetic active and natural health ingredients, which are used in a wide variety of consumer products. Our products are sold principally to manufacturers of perfumes and cosmetics, hair and other personal care products, soaps and detergents, cleaning products, dairy, meat and other processed foods, beverages, snacks and savory foods, sweet and baked goods, dietary supplements, infant and elderly nutrition, functional food, and pharmaceutical and oral care products.

Fiscal Year End The Company has historically operated on a 52/53 week fiscal year generally ending on the Friday closest to the last day of the year. For ease of presentation, December 31 is used consistently throughout the financial statements and notes to represent the period-end date. The 2019 fiscal year was a 53 week period, and 2018 and 2017 fiscal years were 52 week periods. For the 2019, 2018 and 2017 fiscal years, the actual closing dates were January 3, December 28, and December 29, respectively.

Use of Estimates The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts and accompanying disclosures. These estimates are based on management’s best knowledge of current events and actions the Company may undertake in the future. Actual results may ultimately differ from estimates.

Principles of Consolidation The consolidated financial statements include the accounts of International Flavors & Fragrances Inc. and those of its subsidiaries. Significant intercompany balances and transactions have been eliminated. To the extent a subsidiary is not wholly owned, any related noncontrolling interests are included as a separate component of Shareholders’ Equity.

Revenue Recognition Revenue from contracts with customers is recognized when the contract or purchase order has received approval and commitment from both parties, has the rights of the parties and payment terms (which can vary by customer) identified, has commercial substance, and collectability of consideration is probable.

For the Company’s Flavors, Fragrances Compounds and Frutarom products, revenue is recognized for the majority of contracts when the Company satisfies its performance obligation by transferring control of the goods to the customer. Revenue is recognized over time for a small number of contracts, and the amount of revenue recognized is based on the extent of progress towards completion of the promised goods, using the output method. With respect to a small number of contracts for the sale of compounds, the Company has an “enforceable right to payment for performance to date” and as the products do not have an alternative use, the Company recognizes revenue for these contracts over time and records a contract asset using the output method.

For the Company’s Fragrances Ingredients products, revenue is recognized for the majority of contracts when the Company satisfies its performance obligation by transferring control of the goods to the customer.

Sales are reduced, at the time revenue is recognized, for applicable discounts, rebates and sales allowances based on historical experience. Related accruals are included in Other current liabilities in the accompanying Consolidated Balance Sheet. The Company considers shipping and handling activities undertaken after the customer has obtained control of the related goods as a fulfillment activity. Net sales include shipping and handling charges billed to customers. Cost of goods sold includes all costs incurred in connection with shipping and handling. See Note 11 for a further discussion on revenue recognition. See Note 11 for a further discussion on contract assets.

Foreign Currency Translation The Company translates the assets and liabilities of non-U.S. subsidiaries into U.S. dollars at year-end exchange rates. Income and expense items are translated at average exchange rates during the year. Cumulative translation adjustments are shown as a separate component of Shareholders’ Equity.

Research and Development Research and development (“R&D”) expenses relate to the development of new and improved tastes or scents, technical product support and compliance with governmental regulation. All research and development costs are expensed as incurred.

Cash and Cash Equivalents Cash and cash equivalents include highly liquid investments with maturities of three months or less at date of purchase.

Restricted Cash Restricted cash is comprised of cash or cash equivalents which has been placed into an account that is restricted for a specific use and from which the Company cannot withdraw the cash on demand.

Accounts Receivable During 2019, the Company entered into certain factoring agreements in the U.S. and The Netherlands under which it can factor up to approximately \$100 million of its trade receivables. The new factoring agreements supplement the Company's existing factoring programs that are sponsored by certain customers. Under all of the arrangements, the Company sells the trade receivables on a non-recourse basis to unrelated financial institutions and accounts for the transactions as sales of receivables. The applicable receivables are removed from the Company's Consolidated Balance Sheet when the cash proceeds are received by the Company. As of December 31, 2019, 2018 and 2017, the Company had sold receivables pursuant to these factoring programs of approximately \$205.7 million, \$168.3 million and \$160.1 million, respectively. Participation in the various programs increased cash provided by operations by approximately \$37.7 million, \$13.6 million and \$15.0 million in 2019, 2018 and 2017, respectively. The cost of participating in these programs was approximately \$7.1 million, \$3.4 million, and \$3.0 million in 2019, 2018, and 2017, respectively and is included as a component of interest expense.

Inventories Inventories are stated at the lower of cost (on a weighted-average basis) or net realizable value. The Company's inventories consisted of the following:

	December 31,	
	2019	2018
<i>(DOLLARS IN THOUSANDS)</i>		
Raw materials	\$ 565,071	\$ 568,916
Work in process	44,532	48,819
Finished goods	513,465	460,802
Total	<u>\$ 1,123,068</u>	<u>\$ 1,078,537</u>

Leases During the year ended December 31, 2019, the Company adopted ASU No. 2016-02, "Leases (Topic 842)," which requires most leases to be recognized on the balance sheet. The Company adopted the standard using the modified retrospective approach with an effective date of December 29, 2018, the beginning of its 2019 fiscal year. Prior year financial statements were not recast. The Company elected various transition provisions available for expired or existing contracts, which allows the Company to carryforward historical assessments of (1) whether contracts are or contain leases, (2) lease classification and (3) initial direct costs.

The Company determines if an arrangement is a lease at contract inception. A lease exists when a contract conveys to the customer the right to control the use of identified property, plant, or equipment for a period of time in exchange for consideration. The definition of a lease embodies two conditions: (1) there is an identified asset in the contract that is land or a depreciable asset (i.e., property, plant, and equipment), and (2) the customer has the right to control the use of the identified asset.

When the Company determines the arrangement is a lease, or contains a lease, at inception, it then determines whether the lease is an operating lease or a finance lease at the commencement date. The Company does not separate lease and nonlease components of contracts.

The Company leases property and equipment, principally under operating leases. In accordance with ASU 2016-02, the Company records a right of use asset and related obligation at the present value of lease payments and, over the term of the lease, depreciates the right of use asset and accretes the obligation to future value. Some of the leases include rental escalation clauses, renewal options and/or termination options that are factored into the determination of lease payments when appropriate. The Company has elected not to separate non-lease components from lease components for all classes of leased assets.

When available, the Company uses the rate implicit in the lease to discount lease payments to present value, however, most of the Company's leases do not provide a readily determinable implicit rate and the Company calculates the applicable incremental borrowing rate to discount the lease payments based on the term of the lease at lease commencement. The incremental borrowing rate is determined based on currency and lease terms.

Upon adoption of the new guidance, the Company recorded a right of use asset of \$308.3 million and total operating lease liabilities of \$313.3 million. Additionally, the Company recorded a net increase to retained earnings of approximately \$23.1 million related to the recognition of deferred gains on certain sale-leaseback transactions that occurred in prior years.

Long-Lived Assets

Property, Plant and Equipment Property, plant and equipment are recorded at cost. Depreciation is calculated on a straight-line basis, principally over the following estimated useful lives: buildings and improvements, 10 to 40 years; machinery and equipment, 3 to 20 years; information technology hardware and software, 3 to 7 years; and leasehold improvements which are included in buildings and improvements, the estimated life of the improvements or the remaining term of the lease, whichever is shorter.

Finite-Lived Intangible Assets Finite-lived intangible assets include customer relationships, patents, trade names, technological know-how and other intellectual property valued at acquisition and amortized on a straight-line basis over the following estimated useful lives: customer relationships, 11 - 23 years; patents, 11 - 15 years; trade names, 14 - 28 years; and technological know-how, 5 - 28 years.

The Company reviews long-lived assets for impairment when events or changes in business conditions indicate that their carrying value may not be recovered. An estimate of undiscounted future cash flows produced by an asset or group of assets is compared to the carrying value to determine whether impairment exists. If assets are determined to be impaired, the loss is measured based on an estimate of fair value using various valuation techniques, including a discounted estimate of future cash flows.

Goodwill Goodwill represents the difference between the total purchase price and the fair value of identifiable assets and liabilities acquired in business acquisitions.

The Company tests goodwill for impairment at the reporting unit level as of November 30 every year or more frequently if events or changes in circumstances indicate the asset might be impaired. A reporting unit is an operating segment or one level below an operating segment (referred to as a component) to which goodwill is assigned when initially recorded.

The Company identifies their reporting units by assessing whether the components of their reporting segments constitute businesses for which discrete financial information is available and management of each reporting unit regularly reviews the operating results of those components. The Company has identified nine reporting units under the Taste, Scent and Frutarom Segments: (1) Flavor Compounds, (2) Fragrance Compounds, (3) Fragrance Ingredients, (4) Cosmetic Actives Ingredients, (collectively, the "IFF Legacy Reporting Units"), (5) Taste, (6) Savory, (7) Natural Product Solutions, (8) Frutarom Fragrance and Fine Ingredients and (9) Inclusions, (collectively, the "Frutarom Reporting Units"). These reporting units were determined based on the level at which the performance is measured and reviewed by segment management.

When testing goodwill for impairment, the Company has the option of first performing a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than the carrying amount. If the Company elects to bypass the qualitative assessment for any reporting units, or if a qualitative assessment indicates it is more likely than not that the estimated carrying value of a reporting unit exceeds its fair value, the Company performs a quantitative goodwill impairment test.

Under the quantitative goodwill impairment test, if a reporting unit's carrying amount exceeds its fair value, the Company will record an impairment charge based on that difference, and the impairment charge will be limited to the amount of goodwill allocated to that reporting unit.

Income Taxes The Company accounts for taxes under the asset and liability method. Under this method, deferred income taxes are recognized for temporary differences between the financial statement and tax return bases of assets and liabilities, based on enacted tax rates and other provisions of the tax law. The effect of a change in tax laws or rates on deferred tax assets and liabilities is recognized as income in the period in which such change is enacted. Future tax benefits are recognized to the extent that the realization of such benefits is more likely than not, and a valuation allowance is established for any portion of a deferred tax asset that management believes may not be realized.

The Company recognizes uncertain tax positions that it has taken or expects to take on a tax return. Pursuant to accounting requirements, the Company first determines whether it is "more likely than not" its tax position will be sustained if the relevant tax authority were to audit the position with full knowledge of all the relevant facts and other information. For those tax positions that meet this threshold, the Company measures the amount of tax benefit based on the largest amount of tax benefit that it has a greater than 50% chance of realizing in a final settlement with the relevant authority. Those tax positions failing to qualify for initial recognition are recognized in the first interim period in which they meet the more likely than not standard. The Company maintains a cumulative risk portfolio relating to all of its uncertainties in income taxes in order to perform this analysis, but the evaluation of its tax positions requires significant judgment and estimation in part because, in certain cases, tax law is subject to varied interpretation, and whether a tax position will ultimately be sustained may be uncertain.

Interest and penalties related to unrecognized tax benefits are recognized as a component of income tax expense.

Retirement Benefits Current service costs of retirement plans and postretirement health care and life insurance benefits are accrued. Prior service costs resulting from plan improvements are amortized over periods ranging from 10 to 20 years.

Financial Instruments Derivative financial instruments are used to manage interest and foreign currency exposures. The gain or loss on the hedging instrument is recorded in earnings at the same time as the transaction being hedged is recorded in earnings. The associated asset or liability related to the open hedge instrument is recorded in Prepaid expenses and Other current assets or Other current liabilities, as applicable.

The Company records all derivative financial instruments on the balance sheet at fair value. Changes in a derivative's fair value are recognized in earnings unless specific hedge criteria are met. If the derivative is designated as a fair value hedge, the changes in the fair value of the derivative and of the hedged item attributable to the hedged risk are recognized in Net income. If the derivative is designated as a cash flow hedge, the effective portions of changes in the fair value of the derivative are recorded in Accumulated other comprehensive income ("AOCI") in the accompanying Consolidated Balance Sheet and are subsequently recognized in Net income when the hedged item affects earnings. Ineffective portions of changes in the fair value of cash flow hedges, if any, are recognized as a charge or credit to earnings.

Software Costs The Company capitalizes direct internal and external development costs for certain significant projects associated with internal-use software and amortizes these costs over 7 years. Neither preliminary evaluation costs nor costs associated with the software after implementation are capitalized. Costs related to projects that are not significant are expensed as incurred.

Net Income Per Share Under the two-class method, earnings are adjusted by accretion of amounts to redeemable noncontrolling interests recorded at redemption value. The adjustments represent in-substance dividend distributions to the noncontrolling interest holders as the holders have a contractual right to receive a specified amount upon redemption. As a result, earnings are adjusted to reflect this in-substance distribution that is different from other common shareholders. In addition, the Company has unvested share based payment awards with a right to receive nonforfeitable dividends and thus are considered participating securities which are required to be included in the computation of basic and diluted earnings per share.

Basic earnings (loss) per share represents the amount of earnings for the period available to each share of common stock outstanding during the period. Basic earnings (loss) per share includes the effect of issuing shares of common stock assuming (i) the prepaid stock purchase contracts ("SPC") are converted into the minimum number of shares of common stock under the if-converted method, and (ii) an adjustment to earnings (loss) to reflect adjustments made to record the redeemable value of redeemable noncontrolling interests. Diluted earnings (loss) per share also includes the effect of issuing shares of common stock, assuming (i) stock options and warrants are exercised, (ii) restricted stock units are fully vested under the treasury stock method, and (iii) the incremental effect of the prepaid SPC converted into the maximum number of shares of common stock under the if-converted method.

Stock-Based Compensation Compensation cost of all stock-based awards is measured at fair value on the date of grant and recognized over the service period for which awards are expected to vest. The cost of such stock-based awards is principally recognized on a straight-line attribution basis over their respective vesting periods, net of estimated forfeitures.

Financing Costs Costs incurred in the issuance of debt are deferred and amortized as part of interest expense over the stated life of the applicable debt instrument. Unamortized deferred financing costs relating to debt are presented as a reduction in the amount of debt outstanding on the Consolidated Balance Sheet. Unamortized deferred financing costs relating to the revolving credit facility are recorded in Other assets on the Consolidated Balance Sheet.

Redeemable Noncontrolling Interests Noncontrolling interests in subsidiaries that are redeemable for cash or other assets outside of the Company's control are classified as mezzanine equity, outside of equity and liabilities, at the greater of the carrying value or the redemption value. The increases or decreases in the estimated redemption amount are recorded with corresponding adjustments against Capital in excess of par value and are reflected in the computation of earnings per share using the two-class method.

Recent Accounting Pronouncements

In December 2019, the FASB issued Accounting Standards Update ("ASU") 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes." The ASU is intended to simplify various aspects related to accounting for income taxes. This guidance is effective for fiscal years beginning after December 15, 2020, and for interim periods within those fiscal years, with early adoption permitted. The Company is currently evaluating the impact this guidance may have on its consolidated financial statements.

In October 2018, the FASB issued ASU 2018-16, "Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate ("SOFR") Overnight Index Swap ("OIS") Rate as a Benchmark Interest Rate for Hedge Accounting Purposes." The ASU allows for the use of the OIS rate based on the SOFR as a U.S. benchmark interest rate for purposes of applying hedge accounting under ASC 815, Derivatives and Hedging. The Company applied this new guidance as of December 29, 2018, the first day of the Company's 2019 fiscal year. The adoption of the guidance did not have a material impact on the Consolidated Financial Statements.

In August 2018, the FASB issued ASU 2018-15, "Intangibles - Goodwill and Other - Internal - Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)." The ASU aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). This guidance is effective for fiscal years beginning after December 15, 2019, and for interim periods within those fiscal years, with early adoption permitted. The adoption of the guidance will impact the Company going forward in the event the Company enters into applicable cloud computing arrangements.

In August 2018, the FASB issued ASU 2018-14, "Compensation - Retirement Benefits - Defined Benefit Plans (Subtopic 715-20)", which modifies the disclosure requirements on company-sponsored defined benefit plans. The ASU is effective for fiscal years beginning after December 15, 2020 on a retrospective basis to all periods presented. Early adoption is permitted. The Company has determined that this guidance will not have an impact on its Consolidated Financial Statements and will have a minimal impact on its disclosures.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820)", which modifies, removes and adds certain disclosure requirements on fair value measurements. The ASU is effective for all entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted. The Company has determined that this guidance will not have an impact on its Consolidated Financial Statements, as the Company has no applicable fair value measurements that are affected by the guidance.

In June 2018, the FASB issued ASU 2018-07, "Compensation - Stock Compensation (Topic 718)" intended to reduce cost and complexity and to improve financial reporting for nonemployee share-based payments. This guidance expands the scope of Topic 718, Compensation-Stock Compensation which currently only includes share-based payments to employees to include share-based payments issued to nonemployees for goods or services. The Company applied this new guidance as of December 29, 2018, the first day of the Company's 2019 fiscal year. The adoption of the guidance did not have a material impact on the Consolidated Financial Statements.

In February 2018, FASB issued ASU 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income" which allows for a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Act, in addition to requiring certain disclosures about stranded tax effects. The guidance was effective as of December 29, 2018, the first day of the Company's fiscal year. The Company elected to not reclassify any stranded tax effects to retained earnings.

In August 2017, FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities" which eliminates the requirement to separately measure and present hedge ineffectiveness and aligns the presentation of hedge gains and losses with the underlying hedge item. This guidance is effective, and as required, has been applied on a modified retrospective basis. The impact of the adoption of this standard on December 29, 2018 was an increase in the beginning balance of the currency translation adjustment component of Accumulated other comprehensive loss of \$1.0 million, and a decrease in Retained Earnings, as presented in the Company's Consolidated Balance Sheet. See Note 13 of the Consolidated Financial Statements for further details.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments", with subsequent amendments, which requires issuers to measure expected credit losses for financial assets based on historical experience, current conditions and reasonable and supportable forecasts. As such, an entity will use forward-looking information to estimate credit losses. The guidance is effective for financial statements issued for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. The Company's evaluation is substantially complete and has included identifying assets that fall within the scope of the standard. The Company has determined that the most significant asset within the scope of the standard is trade receivables. The Company is analyzing

payment history as well as aging to determine the appropriate allowance and will reflect the adoption of the standard on the first day of its 2020 fiscal year.

Reclassifications and Updates

Certain other immaterial prior year disclosure amounts have been reclassified or updated to conform to current year presentation.

NOTE 2. RESTRUCTURING AND OTHER CHARGES

Restructuring and other charges primarily consist of separation costs for employees including severance, outplacement and other benefit ("Severance") costs as well as costs related to plant closures, principally related to fixed assets write-downs ("Fixed asset write-down") and all other related restructuring ("Other") costs. All restructuring and other charges, net expenses are separately stated on the Consolidated Statement of Income and Comprehensive Income.

Frutarom Integration Initiative

In connection with the acquisition of Frutarom, the Company began to execute an integration plan that, among other initiatives, seeks to optimize its manufacturing network. As part of the Frutarom Integration Initiative, the Company expects to close approximately 35 manufacturing sites over the next two years with most of the closures targeted to occur before the end of fiscal 2020. During 2019, the Company announced the closure of ten facilities, of which six facilities are in Europe, Africa and Middle East, two facilities in Latin America, and one facility each in North America and Greater Asia regions. Since the inception of the initiative, the Company has expensed \$10.4 million. Total costs for the program are expected to be approximately \$65 million including cash and non-cash charges.

2019 Severance Program

During 2019, the Company incurred severance charges related to approximately 330 headcount reductions. The headcount reductions primarily related to the Scent business unit and outsourcing of certain IT functions, with additional amounts related to headcount reductions in all business units associated with the establishment of a new shared service center in Europe. Since the inception of the program, the Company has expensed \$21.3 million. Total costs for the program are expected to be approximately \$25 million.

2017 Productivity Program

In connection with 2017 Productivity Program, the Company recorded \$24.5 million of charges related to personnel costs and lease termination costs since the program's inception. Total costs for the program are expected to be approximately \$25 million.

Changes in Restructuring Liability

Movements in severance-related accruals during 2017, 2018 and 2019 are as follows:

<i>(DOLLARS IN THOUSANDS)</i>	<u>Balance at January 1, 2017</u>	<u>Additional Charges (Reversals), Net</u>	<u>Non-Cash Charges</u>	<u>Cash Payments</u>	<u>Balance at December 31, 2017</u>
<u>2015 Severance Plan</u>					
Severance	\$ 3,277	\$ (2,311)	\$ —	\$ (966)	\$ —
<u>2017 Productivity Program</u>					
Severance	—	20,620	—	(13,081)	7,539
Other	—	1,402	(528)	(456)	418
Total restructuring	\$ 3,277	\$ 19,711	\$ (528)	\$ (14,503)	\$ 7,957
<i>(DOLLARS IN THOUSANDS)</i>	<u>Balance at January 1, 2018</u>	<u>Additional Charges, Net</u>	<u>Non-Cash Charges</u>	<u>Cash Payments</u>	<u>Balance at December 31, 2018</u>
<u>2017 Productivity Program</u>					
Severance	\$ 7,539	\$ 3,884	\$ —	\$ (7,298)	\$ 4,125
Other	418	1,195	(418)	(120)	1,075
Total restructuring	\$ 7,957	\$ 5,079	\$ (418)	\$ (7,418)	\$ 5,200
<i>(DOLLARS IN THOUSANDS)</i>	<u>Balance at January 1, 2019</u>	<u>Additional Charges (Reversals), Net</u>	<u>Non-Cash Charges</u>	<u>Cash Payments</u>	<u>Balance at December 31, 2019</u>
<u>2017 Productivity Program</u>					
Severance	\$ 4,125	\$ (1,947)	\$ —	\$ (1,072)	\$ 1,106
Other	1,075	—	—	(987)	88
<u>Frutarom Integration Initiative</u>					
Severance	—	6,110	—	(2,072)	4,038
Fixed asset write down	—	534	(534)	—	—
Other	—	3,726	(145)	(1,096)	2,485
<u>2019 Severance Program</u>					
Severance	—	20,871	—	(7,974)	12,897
Other	—	471	—	—	471
Total restructuring	\$ 5,200	\$ 29,765	\$ (679)	\$ (13,201)	\$ 21,085

Other includes supplier contract termination costs, consulting and advisory fees, and other.

Charges by Segment

The following table summarizes the total amount of costs incurred in connection with these restructuring programs by segment:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Taste	\$ 328	\$ 1,646	\$ 4,505
Scent	11,768	3,433	13,077
Frutarom	10,042	—	N/A
Shared IT & Corporate Costs	7,627	—	2,129
Total Restructuring and other charges, net	\$ 29,765	\$ 5,079	\$ 19,711

NOTE 3. ACQUISITIONS

Pending Transaction with Nutrition & Biosciences, Inc.

On December 15, 2019, the Company entered into definitive agreements with DuPont de Nemours, Inc. (“DuPont”), including an Agreement and Plan of Merger, pursuant to which DuPont will transfer its nutrition and biosciences business to Nutrition & Biosciences, Inc., a Delaware corporation and wholly owned subsidiary of DuPont (“N&B”), and N&B will merge with and into a wholly owned subsidiary of IFF in exchange for a number of shares of IFF common stock, par value \$0.125 per share (“IFF Common Stock”) (collectively, the “DuPont N&B Transaction”). In connection with the transaction, DuPont will receive a one-time \$7.3 billion special cash payment (the “Special Cash Payment”), subject to certain adjustments. As a result of the DuPont N&B Transaction, holders of DuPont’s common stock will own approximately 55.4% of the outstanding shares of IFF on a fully diluted basis.

Completion of the DuPont N&B Transaction is subject to various closing conditions, including, among other things, (1) approval by IFF’s shareholders of the issuance of IFF Common Stock in connection with the transaction; (2) the effectiveness of the registration statements to be filed with the Securities and Exchange Commission pursuant to the Merger Agreement; and (3) the expiration of the applicable waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and obtaining certain other consents, authorizations, orders or approvals from governmental authorities. We expect that the transaction will close in early 2021.

On December 15, 2019, IFF and N&B entered into a commitment letter which provides \$7.5 billion in an aggregate principal amount of senior unsecured bridge term loans (the “Bridge Loans”). On January 17, 2020, N&B entered into a term loan credit agreement providing for unsecured term loan facilities in an aggregate principal amount of \$1.25 billion (the “Term Loan Facilities”), which reduced the commitments under the Bridge Loans commitment letter by a corresponding amount. N&B will be the initial borrower under the remaining \$6.25 billion tranche of the 364-day senior unsecured bridge facility (the “Bridge Facility”) (or, if applicable, any replacement debt financing), which, together with the Term Loan Facilities, will be used to finance the Special Cash Payment and to pay related fees and expenses. Following the consummation of the merger, all obligations of N&B with respect to the Term Loan Facilities and the Bridge Facility (if any) or, if applicable, the replacement debt financing, will be guaranteed by IFF (or at the election of N&B and IFF, assumed by IFF).

2019 Acquisition Activity

During the second quarter of 2019, the Company acquired the remaining 50% interest in an equity method investee located in Canada. The Company previously held an investment of \$33 million in the entity and recognized a gain of approximately \$3 million on the transaction representing the adjustment of its historical investment to its fair value. This amount is within Other income, net in the Consolidated Statement of Income and Comprehensive Income. The purchase of the additional interest increased the Company’s ownership of the investee to 100%, and the acquired entity is managed under the Frutarom segment. The purchase price for the remaining 50% was approximately \$37 million, including cash and an accrual for the amount expected to be paid in contingent consideration. The Company began to consolidate the results of the acquired entity from the date on which it acquired the remaining 50% interest during the second quarter of 2019. Goodwill of approximately \$35 million and intangible assets of \$24 million were recorded in connection with the acquisition. The goodwill is not deductible for income tax purposes. The purchase price allocation is preliminary and is expected to be completed within the measurement period.

During the first quarter of 2019, the Company acquired 70% of a company in Europe and increased its ownership of an Asian company from 49% to 60% after receipt of previously pending regulatory approvals. The two acquired entities, which manufacture flavor products, are managed under the Frutarom segment. The total purchase price for the acquisitions was \$52 million, excluding cash acquired and including \$19 million of contingent consideration and deferred payments. The preliminary purchase price allocations have been performed and resulted in goodwill of approximately \$56 million and intangible assets of \$18 million. The purchase price allocations are preliminary and are expected to be completed within the measurement period.

Pro forma information has not been presented as the entities acquired in 2019 are not material.

Frutarom

On October 4, 2018 (the “Closing”), the Company completed its acquisition of 100% of Frutarom Industries Ltd. (“Frutarom”), which was accounted for using the purchase method of accounting in accordance with ASC Topic 805, Business Combinations, with IFF identified as the acquirer.

The Company paid approximately \$7,031 million for the acquisition, including \$4,289 million in cash and \$2,047 million in equity. At the Closing, each issued and outstanding Frutarom ordinary share was exchanged for \$71.19 in cash and 0.2490 of

a share of the Company's common stock. A portion of Frutarom's existing debt was repaid concurrent with the Closing. Frutarom's debt, which was not legally assumed by IFF but was paid at Closing, was approximately \$695.0 million. This made up the remainder of the purchase consideration. To finance the acquisition, the Company used cash on hand and borrowed approximately \$3.3 billion of additional debt, consisting of \$2.8 billion of senior unsecured notes, \$350.0 million in term loans and \$139.5 million of tangible equity units ("TEUs"). See Notes 8 and 9 for further details. The Company issued 14.9 million shares as a portion of the purchase consideration resulting in former Frutarom shareholders holding approximately 14% of the Company's outstanding common stock as of the Closing. Additionally, the Company issued 16,500,000 TEUs in an underwritten public offering for net proceeds of approximately \$665.1 million.

Purchase Price Allocation

The Company allocated the purchase consideration to the tangible net assets and identifiable intangible assets acquired based on estimated fair values at the acquisition date, and recorded the excess of consideration over the fair values of net assets acquired as goodwill.

The purchase price allocation was finalized as of the end of the third quarter of 2019 when the Company finalized the valuation of fixed assets, goodwill and intangible assets (trade names, product formulas, customer relationships and favorable/unfavorable leases and the related estimated useful lives). Additionally, in connection with finalizing the purchase price allocation, the Company also finalized the projected combined future tax rate applied to the valuation of assets, which impacted the valuation of goodwill and intangible assets.

The following table summarizes the fair values of the assets acquired and liabilities assumed as of October 4, 2018, showing both the preliminary and final purchase price allocations:

<i>(IN THOUSANDS)</i>	As reported in the fourth quarter of 2018	Measurement period adjustments	Final Purchase Price Allocation
Cash and cash equivalents	\$ 140,747	\$ —	\$ 140,747
Other current assets	699,627	(25,706)	673,921
Identifiable intangible assets	2,690,000	(21,700)	2,668,300
Other assets	353,710	58,401	412,111
Equity method investments	25,791	10,439	36,230
Current liabilities	(311,325)	(7,190)	(318,515)
Debt assumed	(77,037)	—	(77,037)
Other liabilities	(632,488)	(39,730)	(672,218)
Redeemable noncontrolling interest	(97,510)	(5,392)	(102,902)
Noncontrolling interest	(3,700)	—	(3,700)
Excess attributable to Goodwill	4,243,079	30,878	4,273,957
Total Purchase Consideration	<u>\$ 7,030,894</u>		<u>\$ 7,030,894</u>

The purchase price allocation of the assets and liabilities acquired in the acquisition of Frutarom as reported in the fourth quarter of 2018 was updated during the measurement period ended October 4, 2019 primarily due to: (i) a \$19.0 million decrease in inventory, (ii) a \$7.4 million decrease in trade receivables, (iii) a \$21.7 million decrease in the fair value of identifiable intangible assets (principally customer relationships and product formulas and arising from the updated valuations of fixed assets), (iv) a \$58.4 million increase primarily related to property, plant and equipment (related to certain entities), (v) a \$10.4 million increase in the fair value of equity method investments, (vi) a \$1.5 million increase to the noncurrent portion of earn-outs, (vii) a \$14.4 million increase to deferred income tax liabilities, (viii) an \$18.9 million increase to reserves for uncertain tax positions, (ix) a \$5.0 million increase to environmental remediation liabilities, and (x) a \$5.4 million increase to redeemable noncontrolling interest. The cumulative impact of the adjustments resulted in a \$30.9 million increase to goodwill.

The measurement period adjustments did not have a material impact on the Company's Net income attributable to IFF stockholders for the year ended December 31, 2019.

The components of acquired intangible assets with finite lives that have been recorded are as follows:

<i>(IN THOUSANDS)</i>	Estimated Amounts	Weighted-Average Useful Life
Product formula	\$ 290,000	10 years
Customer relationships	2,230,000	18 to 20 years
Trade names	140,000	23 years
Favorable/Unfavorable Leases, net	8,300	5 to 15 years
Total	<u>\$ 2,668,300</u>	

During 2019, in connection with the determination of the final purchase price allocation, the Company also finalized its determination of the reporting units for the Frutarom operating segment. The reporting units identified were as follows: (i) Taste; (ii) Savory Solutions; (iii) Inclusions; (iv) Fine Ingredients; and (v) Natural Product Solutions.

Pro forma financial information

The following unaudited pro forma financial information presents the combined results of operations of IFF and Frutarom as if the acquisition had been completed as of the beginning of the prior fiscal year, or January 1, 2017. The unaudited pro forma financial information is presented for informational purposes and is not indicative of the results of operations that would have been achieved if the acquisition and related borrowings had taken place on January 1, 2017, nor are they indicative of future results. The unaudited pro forma financial information for the year ended December 31, 2018 includes IFF results, including the post-acquisition results of Frutarom, since October 4, 2018, and pre-acquisition results of Frutarom for the period January 1, 2018 through October 3, 2018.

The unaudited pro forma results for the years ended December 31, 2018 and December 31, 2017 is as follows:

<i>(IN THOUSANDS)</i>	Year Ended December 31,	
	2018	2017
Unaudited pro forma net sales	\$ 5,135,906	\$ 4,761,115
Unaudited pro forma net income attributable to the Company	474,498	240,784

The unaudited pro forma results for all periods presented include adjustments made to account for certain costs and transactions that would have been incurred had the acquisition been completed as of January 1, 2017, including amortization charges for acquired intangibles assets, adjustments for acquisition transaction costs, adjustments for depreciation expense for property, plant, and equipment, and adjustments to interest expense. These adjustments are net of any applicable tax impact and were included to arrive at the pro forma results above.

TAA

On December 7, 2018, the Company completed the acquisition of 100% of the outstanding shares of The Additive Advantage, LLC ("TAA"), a privately-held manufacturing and licensing company with facilities in North America. The acquisition was accounted for under the purchase method. TAA was acquired to strengthen IFF's position in delivery capability and technologies, and to advance the R&D delivery platform with printable encapsulation solutions.

The Company paid \$14.5 million for this acquisition, which was funded from cash on hand. Additionally, the Company recorded an accrual of \$6.9 million representing the current estimate of additional contingent consideration payable to the former owners of TAA determined using the scenario-based method. In addition, as part of the acquisition, the Company assumed a loan of \$0.5 million that had been due to the Company from TAA. This amount was included in the purchase consideration.

The purchase consideration was allocated principally to identifiable intangible assets including \$11.4 million to In-process research and development ("IPR&D") and approximately \$10.4 million to goodwill (which is deductible for tax purposes). IPR&D represents acquired printing technology that had not been completed as of the acquisition date. The fair value of IPR&D was determined using the income approach. IPR&D will be tested for impairment going forward, and will only be amortized once technological feasibility has been established. The rate utilized to discount the net cash flows to their present value reflects the risk associated with the intangible asset and is benchmarked to the cost of equity. Goodwill is the excess of the purchase price over the fair value of net assets acquired and represents the value the Company expects to achieve from applying the technology to the Company's existing product portfolio.

The purchase price allocation was finalized in the fourth quarter of 2019. The acquisition agreement contains a provision for the payment of certain milestone amounts, which will be expensed as incurred post-acquisition, with a maximum amount that will be paid out of \$5.4 million, as they are contingent on continued employment, as well as achievement of milestones related to the IPR&D programs.

No pro forma financial information is presented as the acquisition was not material to the consolidated financial statements.

PowderPure

On April 7, 2017, the Company completed the acquisition of 100% of the outstanding shares of Columbia PhytoTechnology, LLC d/b/a PowderPure ("PowderPure"), a privately-held flavors company with facilities in North America. The acquisition was accounted for under the purchase method. PowderPure was acquired to expand expertise in, and product offerings of, clean label solutions within the Flavors business.

The Company paid approximately \$54.6 million including \$0.4 million of cash acquired for this acquisition, which was funded from existing resources including use of its Credit Facility. Additionally, the Company recorded an accrual of approximately \$1.4 million representing the current estimate of additional contingent consideration payable to the former owners of PowderPure. (The maximum earnout payable is \$10 million upon satisfaction of certain performance metrics). The purchase price exceeded the preliminary fair value of existing net assets by approximately \$48.0 million. The excess was allocated principally to identifiable intangible assets including approximately \$27.5 million to proprietary technology, approximately \$4.5 million to trade name and approximately \$0.8 million to customer relationships, and approximately \$15.2 million of goodwill (which is deductible for tax purposes). Goodwill is the excess of the purchase price over the fair value of net assets acquired and represents the value the Company expects to achieve from its increased exposure to clean label products within the Company's existing Flavors business. The intangible assets are being amortized over the following estimated useful lives: proprietary technology, 14 years; trade name, 14 years; and customer relationships, 2 years.

The purchase price allocation was completed in the first quarter of 2018. No material adjustments were made to the purchase price allocation since the preliminary valuation performed in the second quarter of 2017. The estimated amount of the contingent consideration payable was reduced to zero during 2018 and resulted in a decrease in administrative expense of approximately \$1.3 million.

No pro forma financial information for 2017 is presented as the acquisition was not material to the consolidated financial statements.

Fragrance Resources

On January 17, 2017, the Company completed the acquisition of 100% of the outstanding shares of Fragrance Resources, Inc., Fragrance Resources GmbH, and Fragrance Resources SAS (collectively "Fragrance Resources"), a privately-held fragrance company with facilities in Germany, North America, France, and China. The acquisition was accounted for under the purchase method. Fragrance Resources was acquired to strengthen the North American and German Fragrances business.

The Company paid approximately €143.4 million (approximately \$151.9 million) including approximately €13.7 million (approximately \$14.4 million) of cash acquired for this acquisition, which was funded from existing resources including use of its Credit Facility. Of the total paid, approximately €142.0 million (approximately \$150.5 million) was paid at closing and an additional €1.4 million (approximately \$1.5 million) was paid in connection with the finalization of the working capital adjustment. The purchase price exceeded the fair value of existing net assets by approximately \$122.0 million. The excess was allocated principally to identifiable intangible assets including approximately \$51.7 million related to customer relationships, approximately \$13.6 million related to proprietary technology and trade name, and approximately \$72.0 million of goodwill (which is not deductible for tax purposes) and approximately \$15.3 million of net deferred tax liability. Goodwill is the excess of the purchase price over the fair value of net assets acquired and represents synergies from the addition of Fragrance Resources to the Company's existing Fragrances business. The intangible assets are being amortized over the following estimated useful lives: trade name, 2 years; proprietary technology, 5 years; and customer relationships, 12 - 16 years.

The purchase price allocation was finalized in the fourth quarter of 2017. Certain measurement period adjustments were made subsequent to the initial purchase price allocation including adjustments related to the finalization of the purchase price, the allocation of certain intangibles and the calculation of applicable deferred taxes. The additional amortization of intangibles required as a result of the measurement period adjustments was not material.

No pro forma financial information for 2017 is presented as the acquisition was not material to the consolidated financial statements.

NOTE 4. PROPERTY, PLANT AND EQUIPMENT, NET

Property, plant and equipment consisted of the following amounts:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
<i>Asset Type</i>		
Land	\$ 73,170	\$ 75,528
Buildings and improvements	831,579	760,783
Machinery and equipment	1,366,041	1,342,881
Information technology	231,858	179,876
Construction in process	188,120	133,870
Total Property, Plant and Equipment	2,690,768	2,492,938
Accumulated depreciation	(1,303,848)	(1,251,786)
Total Property, Plant and Equipment, Net	\$ 1,386,920	\$ 1,241,152

Depreciation expense was \$130.2 million for the year ended December 31, 2019, and \$89.1 million and \$83.4 million for the years ended December 31, 2018 and 2017, respectively.

NOTE 5. GOODWILL AND OTHER INTANGIBLE ASSETS, NET*Goodwill*

Movements in goodwill during the years ended December 31, 2017, 2018 and 2019 were as follows:

<i>(DOLLARS IN THOUSANDS)</i>	Goodwill
Balance at January 1, 2017	\$ 1,000,123
Acquisitions	87,865
Foreign exchange	32,920
Other ^(a)	35,380
Balance at December 31, 2017	1,156,288
Acquisitions ^(b)	4,253,541
Disposals	(19,069)
Foreign exchange	(12,372)
Balance at December 31, 2018	5,378,388
Acquisitions ^(c)	98,411
Frutarom measurement period adjustment	30,876
Foreign exchange	(10,079)
Balance at December 31, 2019	\$ 5,497,596

(a) Other above principally represents the increase to Goodwill associated with the update of certain customer relationship assumptions in the final purchase price allocation of David Michael.

(b) Primarily relates to the Company's acquisition of Frutarom.

(c) Additions primarily relate to the 2019 Acquisition Activity. See Note 3 for details.

Goodwill by segment was as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Taste	\$ 527,785	\$ 525,060
Scent	623,373	618,878
Frutarom	4,346,438	4,224,010
Unallocated	—	10,440
Total	\$ 5,497,596	\$ 5,378,388

The increase reflected in Scent above represents the impact of foreign currency. The increase reflected in Frutarom above primarily represents the final purchase price allocation of Frutarom as disclosed in Note 3.

The unallocated Goodwill for the year ended December 31, 2018 above represents the preliminary purchase price allocation of TAA as disclosed in Note 3 which was subsequently allocated in 2019.

Annual Goodwill Impairment Test

For the annual impairment test as of November 30, 2019, the Company assessed the fair value of the reporting units primarily using an income approach. Under the income approach, the Company determines the fair value by using a discounted cash flow method at a rate of return that reflects the relative risk of the cash flows, projecting future cash flows of each reporting unit, as well as a terminal value. The Company uses the most current actual and forecasted operating data available and key estimates and assumptions used in these valuations include revenue growth rates and profit margins based on internal forecasts, specific weighted-average cost of capital used to discount future cash flows, and historical operating trends of the Company.

There was no impairment of goodwill at any of the Company's nine reporting units in 2019. Based on the annual impairment test performed at November 30, 2019, the Company determined that IFF Legacy Reporting Units fair values exceeded their respective carrying values by over 200%, with the exception of one reporting unit that had 80% excess fair value over carrying value. In the analysis performed for the Frutarom Reporting Units, there was less than 10% excess fair value over carrying value for two reporting units. The fair values of the remaining Frutarom Reporting Units exceeded their respective carrying values by a range of approximately 10% to 55%.

For the reporting units with less than 10% excess fair value, the Savory reporting unit had excess fair value over carrying value of 8.3%, and the Taste reporting unit had excess fair value over carrying value of 7.5%. While management believes that the assumptions used in the impairment test were reasonable, changes in key assumptions, including, lower revenue growth, lower operating margin, lower terminal growth rates or increasing discount rates could result in a future impairment.

If current long-term projections for these reporting units are not realized or materially decrease, we may be required to write-off all or a portion of the goodwill. Such charge could have a material effect on the Consolidated Statements of Operations and Balance Sheets.

Using the income approach and holding other assumptions constant, the following table provides the impact on the headroom by hypothetically changing key assumptions on a standalone basis for the Company's Savory and Taste reporting units as of November 30, 2019:

<i>(DOLLARS IN MILLIONS)</i>	Goodwill	Key Assumptions		Existing Headroom	Resulting Headroom	
		Discount Rate	Terminal Growth		50 bps Increase in Discount Rate	50 bps Decline in Terminal Growth
Savory	\$ 1,205	7.5%	3.0%	8.3%	(3.4)%	(0.3)%
Taste	1,662	7.5%	3.0%	7.5%	(3.6)%	(0.9)%

Other Intangible Assets

Other intangible assets, net consisted of the following amounts:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Asset Type		
Customer relationships	\$ 2,653,446	\$ 2,658,659
Technological know-how	468,256	451,016
Trade names & patents	178,968	177,770
Other	40,362	43,766
Total carrying value	3,341,032	3,331,211
Accumulated Amortization		
Customer relationships	(302,047)	(156,906)
Technological know-how	(135,269)	(93,051)
Trade names & patents	(27,213)	(19,593)
Other	(24,568)	(22,339)
Total accumulated amortization	(489,097)	(291,889)
Other intangible assets, net	\$ 2,851,935	\$ 3,039,322

Amortization expense was \$193.1 million for the year ended December 31, 2019, and \$75.9 million and \$34.7 million for the years ended December 31, 2018 and 2017, respectively. Amortization expense for the next five years and thereafter, based on preliminary valuations and determinations of useful lives, is expected to be as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,				
	2020	2021	2022	2023	2024
Estimated future intangible amortization expense	\$ 189,896	\$ 185,510	\$ 181,698	\$ 181,586	\$ 181,586

NOTE 6. OTHER ASSETS AND LIABILITIES, CURRENT AND NONCURRENT

Other current assets consisted of the following amounts:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Value-added tax receivable	\$ 78,526	\$ 62,475
Income tax receivable	69,284	60,139
Prepaid expenses	110,768	90,962
Other	60,756	63,460
Total	<u>\$ 319,334</u>	<u>\$ 277,036</u>

Other assets consisted of the following amounts:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Operating lease right-of-use assets	\$ 287,870	\$ —
Finance lease right-of-use assets	4,792	—
Deferred income taxes	125,552	89,000
Overfunded pension plans	85,657	75,158
Cash surrender value of life insurance contracts	47,578	43,179
Other ^(a)	56,967	81,336
Total	<u>\$ 608,416</u>	<u>\$ 288,673</u>

(a) Includes land usage rights in China and long term deposits.

Other current liabilities consisted of the following amounts:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Accrued payrolls and bonuses	\$ 102,704	\$ 121,080
Rebates and incentives payable	49,938	44,175
Value-added tax payable	20,729	23,253
Interest payable	32,417	36,823
Current pension and other postretirement benefit obligation	11,972	11,528
Accrued insurance (including workers' compensation)	9,960	9,447
Earn outs payable	12,961	29,974
Restructuring and other charges	21,085	5,200
Short term operating lease obligation	37,744	—
Short term financing lease obligation	1,931	—
Accrued income taxes	42,141	24,356
Other	233,240	224,672
Total	<u>\$ 576,822</u>	<u>\$ 530,508</u>

NOTE 7. LEASES

The Company has leases for corporate offices, manufacturing facilities, research and development facilities, and certain transportation and office equipment, all of which are operating leases. The Company's leases have remaining lease terms of up to 40 years, some of which include options to extend the leases for up to 5 years.

The components of lease expense were as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31, 2019	
Operating lease cost	\$	52,213
Financing lease cost		2,235

The total rental expense, as calculated prior to the adoption of ASU 2016-02, was as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2018	2017
Rental Expense	\$ 42,365	\$ 37,785

Supplemental cash flow information related to leases was as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31, 2019	
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flow from operating activities	\$	51,444
Operating cash flow from finance leases		64
Financing cash flow from finance leases		2,204
Right-of-use assets obtained in exchange for lease obligations		
Operating leases		29,823
Finance leases		2,833

Supplemental balance sheet information related to leases was as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31, 2019	
Operating Leases		
Operating lease right-of-use assets ⁽¹⁾	\$	287,870
Other current liabilities ⁽²⁾		37,744
Operating lease liabilities ⁽³⁾		253,367
Total operating lease liabilities		291,111
Financing Leases		
Financing lease right-of-use assets ⁽¹⁾		4,792
Other current liabilities ⁽²⁾		1,931
Financing lease liabilities ⁽³⁾		2,525
Total financing lease liabilities		4,456

(1) Presented in Other assets in the Consolidated Balance Sheet.

(2) Presented in Other current liabilities in the Consolidated Balance Sheet.

(3) Presented in Other liabilities in the Consolidated Balance Sheet.

Weighted average remaining lease term and discount rate were as follows:

December 31, 2019

Weighted average remaining lease term in years	
Operating leases	11.3
Finance leases	3.3
Weighted average discount rate	
Operating leases	3.89%
Finance leases	1.69%

Maturities of lease liabilities were as follows:

(DOLLARS IN THOUSANDS)

December 31, 2019

Operating Leases	
Less than 1 Year	\$ 49,199
1-3 Years	81,829
3-5 Years	60,489
After 5 years	178,231
Less: Imputed Interest	(78,637)
Total	\$ 291,111
Financing Leases	
Less than 1 Year	\$ 2,036
1-3 Years	2,073
3-5 Years	486
After 5 years	26
Less: Imputed Interest	(165)
Total	\$ 4,456

Minimum rental payments under non-cancellable operating leases, as calculated prior to the adoption of ASU 2016-02, were as follows:

(DOLLARS IN THOUSANDS)

December 31, 2018

2019	\$ 49,350
2020	42,156
2021	36,445
2022	32,174
2023	28,499
Thereafter	201,078
Total	\$ 389,700

Right of use assets by region were as follows:

(DOLLARS IN THOUSANDS)

	December 31, 2019	
Operating Leases		
North America	\$	143,556
Europe, Africa and Middle East		110,552
Greater Asia		20,492
Latin America		13,270
Consolidated	\$	287,870
Financing Leases		
North America	\$	246
Europe, Africa and Middle East		3,221
Greater Asia		516
Latin America		809
Consolidated	\$	4,792

NOTE 8. TANGIBLE EQUITY UNITS

On September 17, 2018, the Company issued and sold 16,500,000, 6.00% TEUs at \$50 per unit and received proceeds of \$800.2 million, net of discounts and issuance costs of \$24.8 million. Each TEU is comprised of: (i) a prepaid SPC to be settled by delivery of a specified number of shares of the Company's common stock, and (ii) a senior amortizing note ("Amortizing Note"), with an initial principal amount of \$8.45 and a final installment payment date of September 15, 2021. The Company pays equal quarterly cash installments of \$0.75 per Amortizing Note on March 15, June 15, September 15, and December 15 of each year, with the exception of the first installment payment of \$0.7333 per Amortizing Note which was due on December 15, 2018. In the aggregate, the annual quarterly cash installments will be equivalent to 6.00% per year. Each installment payment constitutes a payment of interest and a partial repayment of principal, computed at an annual rate of 3.79%. Each TEU may be separated by a holder into its constituent SPC and Amortizing Note after the initial issuance date of the TEUs, and the separate components may be combined to create a TEU after the initial issuance date, in accordance with the terms of the SPC. The TEUs are listed on the New York Stock Exchange under the symbol "IFFT".

The proceeds from the issuance of the TEUs were allocated to equity and debt based on the relative fair value of the respective components of each TEU as follows:

(IN MILLIONS, EXCEPT FAIR VALUE PER TEU)

	SPC		Amortizing Note		Total
Fair Value per TEU	\$	41.5	\$	8.5	\$ 50.0
Gross Proceeds	\$	685.5	\$	139.5	\$ 825.0
Less: Issuance costs		20.4		4.4	24.8
Net Proceeds	\$	665.1	\$	135.1	\$ 800.2

The net proceeds of the SPCs were recorded as additional paid in capital, net of issuance costs. The net proceeds of the Amortizing Notes were recorded as debt, with deferred financing costs recorded as a reduction of the carrying amount of the debt in the Company's consolidated balance sheet. Deferred financing costs related to the Amortizing Notes are amortized through the maturity date using the effective interest rate method.

Unless settled early at the holder's or the Company's election, each SPC will automatically settle on September 15, 2021 for a number of shares of common stock per SPC based on the 20 day volume-weighted average price ("VWAP") of the Company's common stock as follows:

VWAP of IFF Common Stock	Common Stock Issued
Equal to or greater than \$159.54	0.3134 shares (minimum settlement rate)
Less than \$159.54, but greater than \$130.25	\$50 divided by VWAP
Less than or equal to \$130.25	0.3839 shares (maximum settlement rate)

At any time prior to the second scheduled trading day immediately preceding September 15, 2021, any holder of an SPC may settle any or all of its SPCs early, and the Company will deliver 0.3134 shares of its common stock for each SPC, subject to adjustment. Additionally, the SPCs may be redeemed in the event of a fundamental change as defined in the SPC.

NOTE 9. DEBT

Debt consisted of the following at December 31:

<i>(DOLLARS IN THOUSANDS)</i>	Effective Interest Rate	2019	2018
2020 Notes ⁽¹⁾	3.69%	\$ 299,381	\$ 298,499
2021 Euro Notes ⁽¹⁾	0.82%	334,561	337,704
2023 Notes ⁽¹⁾	3.30%	299,004	298,698
2024 Euro Notes ⁽¹⁾	1.88%	558,124	564,034
2026 Euro Notes ⁽¹⁾	1.93%	890,183	899,886
2028 Notes ⁽¹⁾	4.57%	396,688	396,377
2047 Notes ⁽¹⁾	4.44%	493,571	493,151
2048 Notes ⁽¹⁾	5.12%	785,996	785,788
Term Loan ⁽¹⁾	3.65%	239,621	349,163
Amortizing Notes ⁽¹⁾	6.09%	82,079	125,007
Bank overdrafts and other		3,131	4,695
Deferred realized gains on interest rate swaps		57	57
Total debt		\$ 4,382,396	\$ 4,553,059
Less: Short term borrowings ⁽²⁾		(384,958)	(48,642)
Total Long-term debt		\$ 3,997,438	\$ 4,504,417

(1) Amount is net of unamortized discount and debt issuance costs.

(2) Includes bank borrowings, overdrafts and current portion of long-term debt.

Term Loan

On June 6, 2018 and amended on July 13, 2018, the Company entered into a term loan credit agreement to replace a portion of the bridge loan facility, reducing the amount of the bridge loan commitments by \$350 million. Under the term loan credit agreement, the lenders thereunder committed to provide, subject to certain conditions, a senior unsecured term loan facility (as amended, "Term Loan") in an original aggregate principal amount of up to \$350.0 million, maturing three years after the funding date thereunder. The proceeds from the term loan were received on October 3, 2018.

The Term Loan bears interest, at the Company's option, at a per annum rate equal to either (x) an adjusted LIBOR rate plus an applicable margin varying from 0.75% to 2.00% or (y) a base rate plus an applicable margin varying from 0.00% to 1.00%, in each case depending on the public debt ratings for non-credit enhanced long-term senior unsecured debt issued by the Company. Loans under the Term Loan will amortize quarterly at a per annum rate of 10.0% of the aggregate principal amount of the loans made under the Term Loan on the funding date, commencing December 31, 2018, with the balance payable on October 3, 2021. The Company may voluntarily prepay the term loans without premium or penalty. The term loan credit agreement contains various covenants, limitations and events of default customary for similar facilities for similarly rated borrowers, including a maximum ratio of net debt to EBITDA of 4.50x with step-downs over time.

During the first, third and fourth quarter of 2019, the Company made payments of \$25 million, \$42 million and \$43 million, respectively, on the Term Loan.

Credit Facility

On May 21, 2018, June 6, 2018 and July 13, 2018, the Company and certain of its subsidiaries amended and restated the Company's existing amended and restated credit agreement with Citibank, N.A., as administrative agent (as amended, the "Credit Facility") in connection with the acquisition of Frutarom, to, among other things (i) extend the maturity date of the Credit Facility until June 6, 2023, (ii) increase the maximum ratio of net debt to EBITDA on and after the closing date of the

acquisition and (iii) increase the drawn down capacity to \$1.0 billion, consisting of a \$585 million tranche A revolving credit facility (which provides for borrowings available in U.S. dollars, euros, Swiss francs, Japanese yen and/or British pounds sterling, with a sublimit of \$25 million for swing line borrowings) (“Tranche A”) and a \$415 million tranche B revolving credit facility (which provides for borrowings available in U.S. dollars, euros, Swiss francs, Japanese yen and/or British pounds sterling, with sublimits of €50 million and \$25 million for swing line borrowings) (“Tranche B” and, together with Tranche A, the “Revolving Facility”). The interest rate on the Revolving Facility will be, at the applicable borrower’s option, a per annum rate equal to either (x) an adjusted LIBOR rate plus an applicable margin varying from 0.75% to 1.75% or (y) a base rate plus an applicable margin varying from 0.00% to 0.750%, in each case depending on the public debt ratings for non-credit enhanced long-term senior unsecured debt issued by the Company. Other terms and covenants under the Credit Facility remain substantially unchanged.

The Credit Facility is available for general corporate purposes of each borrower and its subsidiaries. The obligations under the Credit Facility are unsecured and the Company has guaranteed the obligations of each other borrower under the Credit Facility. The Company pays a commitment fee on the aggregate unused commitments; such fee is not material.

In connection with the Credit Facility, the Company incurred \$0.7 million of debt issuance costs. As of December 31, 2019, the Company was in compliance with all covenants under this Credit Facility. Total availability under the Credit Facility was \$1.0 billion, with no outstanding borrowings as of December 31, 2019. As the Credit Facility is a multi-year revolving credit agreement, the Company classifies as long-term debt the portion that it has the intent and ability to maintain outstanding longer than 12 months.

2018 Senior Unsecured Notes

On September 26, 2018, the Company issued \$300 million aggregate principal amount of senior unsecured notes that mature on September 25, 2020 (the “2020 Notes”). The 2020 Notes bear interest at a rate of 3.40% per year, payable semi-annually on March 25 and September 25 of each year, beginning March 25, 2019. Total proceeds from the issuance of the 2020 Notes, net of underwriting discounts and offering costs, were \$298.9 million.

On September 25, 2018 the Company issued €300 million aggregate principal amount of senior unsecured notes that mature on September 25, 2021 (the “2021 Euro Notes”). The 2021 Notes bear interest at a rate of 0.5% per year, payable annually on September 25 of each year, beginning September 25, 2019. Total proceeds from the issuance of the 2021 Notes, net of underwriting discounts and offering costs, were €297.7 million (\$349.5 million in USD).

On September 25, 2018, the Company issued €800 million aggregate principal amount of senior unsecured notes that mature on September 25, 2026 (the “2026 Euro Notes”). The 2026 Notes bear interest at a rate of 1.8% per year, payable annually on September 25 of each year, beginning September 25, 2019. Total proceeds from the issuance of the 2026 Notes, net of underwriting discounts and offering costs, were €794.1 million (\$932.2 million in USD).

On September 26, 2018, the Company issued \$400 million aggregate principal amount of senior unsecured notes that mature on September 26, 2028 (the “2028 Notes”). The 2028 Notes bear interest at a rate of 4.45% per year, payable semi-annually on March 26 and September 26 of each year, beginning March 26, 2019. Total proceeds from the issuance of the 2028 Notes, net of underwriting discounts and offering costs, were \$397.0 million.

On September 26, 2018, the Company issued \$800 million aggregate principal amount of senior unsecured notes that mature on September 26, 2048 (the “2048 Notes” and collectively with the 2021 Euro Notes, 2026 Euro Notes, 2020 Notes, 2028 Notes, the “2018 Senior Unsecured Notes”). The 2048 Notes bear interest at a rate of 5.0% per year, payable semi-annually on March 26 and September 26 of each year, beginning March 26, 2019. Total proceeds from the issuance of the 2048 Notes, net of underwriting discounts and offering costs, were \$787.2 million.

As discussed in Note 17, the 2021 Euro Notes and 2026 Euro Notes have been designated as a hedge of the Company’s net investment in certain subsidiaries.

Tangible Equity Units - Senior Unsecured Amortizing Notes

On September 17, 2018, in connection with the issuance of the TEUs, the Company issued \$139.5 million aggregate principal amount of Amortizing Notes. The Amortizing Notes mature on September 15, 2021. Each quarterly cash installment payment of \$0.75 (or, in the case of the installment payment due on December 15, 2018, \$0.73333) per Amortizing Note will constitute a partial repayment of principal and a payment of interest, computed at an annual rate of 3.79%. Interest will be calculated on the basis of a 360 day year consisting of twelve 30 day months. Payments will be applied first to the interest due and payable and then to the reduction of the unpaid principal amount, allocated as set forth in the amortization schedule in the indenture governing the Amortizing Notes. See Note 8 for further information on the TEUs.

There are no covenants or provisions in the indenture related to the TEUs that would afford the holders of the amortizing notes protection in the event of a highly leveraged transaction, reorganization, restructuring, merger or similar transaction involving the Company that may adversely affect such holders. If a fundamental change occurs, or if the Company elects to settle the SPCs early, then the holders of the Amortizing Notes will have the right to require the Company to repurchase the Amortizing Notes at a repurchase price equal to the principal amount of the Amortizing Notes as of the repurchase date plus accrued and unpaid interest. The indenture also contains customary events of default which would permit the holders of the Amortizing Notes to declare the notes to be immediately due and payable if not cured within applicable grace periods, including the failure to make timely installment payments on the notes or other material indebtedness, failure to give notice of a fundamental change and specified events of bankruptcy and insolvency.

2047 Notes

On May 18, 2017, the Company issued \$500.0 million face amount of 4.375% Senior Notes ("2047 Notes") due 2047 at a discount of \$1.8 million. The Company received proceeds related to the issuance of these 2047 Notes of \$493.9 million which was net of the \$1.8 million discount and \$4.4 million in underwriting fees (recorded as deferred financing costs). In addition, the Company incurred \$0.9 million in legal and professional costs associated with the issuance and such costs were recorded as deferred financing costs. In connection with the debt issuance, the Company entered into pre-issuance hedging transactions that were settled upon issuance of the debt and resulted in a loss of approximately \$5.3 million. The discount, deferred financing costs and pre-issuance hedge loss are being amortized as interest expense over the 30 year term of the debt. The 2047 Notes bear interest at a rate of 4.375% per annum, with interest payable semi-annually on June 1 and December 1 of each year, commencing on December 1, 2017. The 2047 Notes will mature on June 1, 2047.

2024 Euro Notes

On March 14, 2016, the Company issued €500.0 million face amount of 1.75% Senior Notes ("2024 Euro Notes") due 2024 at a discount of €0.9 million. The Company received proceeds related to the issuance of these 2024 Euro Notes of €496.0 million which was net of the €0.9 million discount and €3.1 million underwriting discount (recorded as deferred financing costs). In addition, the Company incurred \$1.3 million of other deferred financing costs in connection with the debt issuance. In connection with the debt issuance, the Company entered into pre-issuance hedging transactions that were settled upon issuance of the debt and resulted in a loss of approximately \$3.2 million. The discount, deferred financing costs and pre-issuance hedge loss are being amortized as interest expense over the eight year term of the debt. The 2024 Euro Notes bear interest at a rate of 1.75% per annum, with interest payable on March 14 of each year, commencing on March 14, 2017. The 2024 Euro Notes will mature on March 14, 2024.

As discussed in Note 17, the 2024 Euro Notes have been designated as a hedge of the Company's net investment in certain subsidiaries.

2023 Notes

On April 4, 2013, the Company issued \$300.0 million face amount of 3.20% Senior Notes ("2023 Notes") due 2023 at a discount of \$0.3 million. The Company received proceeds related to the issuance of these 2023 Notes of \$297.8 million which was net of the \$0.3 million discount and a \$1.9 million underwriting discount (recorded as deferred financing costs). In addition, the Company incurred \$0.9 million of other deferred financing costs in connection with the debt issuance. The discount and deferred financing costs are being amortized as interest expense over the term of the 2023 Notes. The 2023 Notes bear interest at a rate of 3.20% per year, with interest payable on May 1 and November 1 of each year, commencing on November 1, 2013. The 2023 Notes mature on May 1, 2023.

Redemption Provisions

The 2018 Senior Unsecured Notes, 2023 Notes, 2024 Euro Notes and 2047 Notes (collectively, the "Notes") share the same redemption provisions. Upon 30 days' notice to holders of the Notes, the Company may redeem the Notes for cash in whole, at any time, or in part, from time to time, prior to maturity, at redemption prices that include accrued and unpaid interest and a make-whole premium, as specified in the indenture governing the Notes. However, no make-whole premium will be paid for redemptions of each note on or after the following date:

Note	Redemption Date
2020 Notes	September 25, 2020
2021 Euro Notes	August 25, 2021
2023 Notes	February 1, 2023
2024 Euro Notes	December 14, 2023
2026 Euro Notes	June 25, 2026
2028 Notes	June 26, 2028
2047 Notes	December 1, 2046
2048 Notes	March 26, 2048

The indenture of each note provides for customary events of default and contains certain negative covenants that limit the ability of the Company and its subsidiaries to grant liens on assets, or to enter into sale-leaseback transactions. In addition, subject to certain limitations, in the event of the occurrence of both (1) a change of control of the Company and (2) a downgrade of the Notes below investment grade rating by both Moody's Investors Services, Inc. and Standard & Poor's Ratings Services within a specified time period, the Company will be required to make an offer to repurchase the Notes at a price equal to 101% of the principal amount of the Notes, plus accrued and unpaid interest to the date of repurchase.

Outstanding Borrowings

The following table shows the contractual maturities of the Company's long-term debt as of December 31, 2019.

<i>(DOLLARS IN THOUSANDS)</i>	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
2020 Notes	\$ 300,000	\$ 300,000	\$ —	\$ —	\$ —
2021 Euro Notes	336,360	—	336,360	—	—
2023 Notes	300,000	—	—	300,000	—
2024 Euro Notes	560,600	—	—	560,600	—
2026 Euro Notes	896,960	—	—	—	896,960
2028 Notes	400,000	—	—	—	400,000
2047 Notes	500,000	—	—	—	500,000
2048 Notes	800,000	—	—	—	800,000
Term Loan	240,000	35,000	205,000	—	—
Amortizing Notes	83,433	47,001	36,432	—	—
Total	\$ 4,417,353	\$ 382,001	\$ 577,792	\$ 860,600	\$ 2,596,960

Commercial Paper

Commercial paper issued by the Company generally has terms of 90 days or less. As of December 31, 2019, and 2018, there was no commercial paper outstanding. The Credit Facility is used as a backstop for the Company's commercial paper program. The Company did not draw any commercial paper during 2019, and the maximum amount of commercial paper outstanding during 2018 was \$85 million.

NOTE 10. INCOME TAXES

Earnings before income taxes consisted of the following:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
U.S. loss before taxes	\$ (110,363)	\$ (99,125)	\$ (24)
Foreign income before taxes	667,815	546,882	537,069
Total income before taxes	\$ 557,452	\$ 447,757	\$ 537,045

The income tax provision consisted of the following:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Current tax provision			
Federal	\$ 9,979	\$ (11,568)	\$ 68,886
State and local	429	1,709	137
Foreign	146,055	98,433	113,468
Total current tax provision	156,463	88,574	182,491
Deferred tax provision			
Federal	(41,126)	(8,287)	74,446
State and local	7,598	(7,092)	(11,537)
Foreign	(25,751)	34,781	(4,020)
Total deferred tax (benefit) provision	(59,279)	19,402	58,889
Total taxes on income	\$ 97,184	\$ 107,976	\$ 241,380

Effective Tax Rate Reconciliation

Reconciliation between the U.S. federal statutory income tax rate to the actual effective tax rate was as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Statutory tax rate	21.0 %	21.0 %	35.0 %
Difference in effective tax rate on foreign earnings and remittances	(6.8)	(6.1)	(12.6)
Tax benefit from supply chain optimization	(1.0)	(3.0)	(2.3)
Unrecognized tax benefit, net of reversals	3.4	2.9	2.3
U.S. tax reform	—	(1.8)	26.5
Deferred taxes on deemed repatriation	0.8	10.1	0.3
Global intangible low-taxed income	—	1.8	—
Acquisition costs	0.5	1.3	—
Establishment (release) of valuation allowance on state deferred	1.7	(1.5)	(1.7)
State and local taxes	(0.8)	0.6	0.1
Other, net	(1.4)	(1.2)	(2.7)
Effective tax rate	17.4 %	24.1 %	44.9 %

The effective tax rate reflects the impact of a favorable mix of earnings, partially offset by loss provisions and the establishment of a valuation allowance on certain state deferred tax assets.

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act") that significantly revised the U.S. tax code effective January 1, 2018. The Tax Act created significant international tax provisions, including global intangible low-taxed income ("GILTI"). The Company has elected to treat GILTI as a current period cost if and when incurred. This tax position resulted in a net \$0.1 million income tax expense for the year ended December 31, 2019, principally due to a provision to return adjustment.

The U.S. consolidated group has historically generated taxable income after the inclusion of foreign dividends which has allowed the Company to realize its federal deferred tax assets. Foreign dividends are subject to a 100% dividends received deduction under the Tax Act and do not serve as a source of federal taxable income. However, as of December 31, 2019 the U.S. consolidated group is in a cumulative income position, and is expected to continue to be in a cumulative income position principally due to the inclusion of global intangible low-taxed income and expects to realize tax benefits for the reversal of temporary differences. The corresponding U.S. federal taxable income is sufficient to realize \$75.9 million in deferred tax assets as of December 31, 2019.

Further, as of December 31, 2019 the Company recorded an expense for \$9.7 million related to a valuation allowance established on state tax credits. This was principally due to state legislative updates during 2019 surrounding certain positions of the Tax Act, namely GILTI. The majority of the Company's state deferred tax assets relate to net operating loss and tax credit carryforwards that have a specified carryforward period. Therefore, the Company has maintained a valuation allowance of \$13.5 million on certain state tax attributes based on a state taxable income forecast. The main inputs into the forecast are the 2019 taxable income projections. Changes in the performance of the North American business, the Company's transfer pricing policies and adjustments to the Company's U.S. tax profile could impact the estimate.

Deferred Taxes

The deferred tax assets and liabilities consisted of the following amounts:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Employee and retiree benefits	\$ 87,924	\$ 80,382
Credit and net operating loss carryforwards	220,156	225,152
Intangible assets	8,477	12,489
Amortizable R&D expenses	15,477	481
Gain on foreign currency translation	3,285	—
Interest limitation	39,867	19,380
Inventory	14,396	13,308
Lease obligations	53,751	—
Other, net	14,351	17,528
Gross deferred tax assets	457,684	368,720
Property, plant and equipment, net	(49,158)	(22,511)
Intangible assets	(621,044)	(616,333)
Right-of-use assets	(53,555)	—
Loss on foreign currency translation	—	(7,717)
Deferred taxes on deemed repatriation	(46,066)	(88,759)
Gross deferred tax liabilities	(769,823)	(735,320)
Valuation allowance	(203,765)	(200,280)
Total net deferred tax liabilities	\$ (515,904)	\$ (566,880)

Net operating loss carryforwards were \$207.9 million and \$209.4 million at December 31, 2019 and 2018, respectively. If unused, \$12.3 million will expire between 2020 and 2039. The remainder, totaling \$195.6 million, may be carried forward indefinitely. Tax credit carryforwards were \$18.5 million and \$17.8 million at December 31, 2019 and 2018, respectively. If unused, the \$18.5 million will expire between 2020 and 2039.

Of the \$226.4 million deferred tax asset for net operating loss carryforwards and credits at December 31, 2019, the Company considers it unlikely that a portion of the tax benefit will be realized. Accordingly, a valuation allowance of \$190.6 million of net operating loss carryforwards and \$14.1 million of tax credits has been established against these deferred tax assets.

Uncertain Tax Positions

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Balance of unrecognized tax benefits at beginning of year	\$ 50,953	\$ 38,162	\$ 26,428
Gross amount of increases in unrecognized tax benefits as a result of positions taken during a prior year	20,361	9,751	1,169
Gross amount of decreases in unrecognized tax benefits as a result of positions taken during a prior year	(2,241)	(5,362)	(268)
Gross amount of increases in unrecognized tax benefits as a result of positions taken during the current year	13,274	14,677	13,191
The amounts of decreases in unrecognized benefits relating to settlements with taxing authorities	(3,575)	(4,550)	—
Reduction in unrecognized tax benefits due to the lapse of applicable statute of limitation	(3,973)	(1,725)	(2,358)
Balance of unrecognized tax benefits at end of year	<u>\$ 74,799</u>	<u>\$ 50,953</u>	<u>\$ 38,162</u>

At December 31, 2019, 2018 and 2017, there were \$73.6 million, \$47.3 million, and \$28.5 million, respectively, of unrecognized tax benefits recorded to Other liabilities and \$1.2 million, \$3.6 million and \$9.7 million recorded to Other current liabilities for 2019, 2018 and 2017, respectively. Of the 2019 balance, \$24.7 million recorded to Other liabilities and \$1.2 million recorded to Other current liabilities are associated with Frutarom, of which \$13.8 million was recorded within the purchase accounting measurement period that ended in the third quarter of 2019. If these unrecognized tax benefits were recognized, all the benefits and related interest and penalties would be recorded as a benefit to income tax expense.

For the year ended December 31, 2019, the Company increased its liabilities for interest and penalties by \$11.0 million, net, reduced its liabilities for interest and penalties by \$1.1 million, net for the year ended 2018, and increased its liabilities for interest and penalties by \$3.0 million, net for the year ended 2017. At December 31, 2019, 2018 and 2017, the Company had accrued \$14.0 million, \$3.0 million and \$2.8 million, respectively, of interest and penalties classified as Other liabilities and \$1.3 million in 2017 recorded to Other current liabilities. No such liabilities were accrued for the year ended December 31, 2019 and 2018. Of the 2019 balance, \$7.8 million was associated with Frutarom, of which \$6.6 million was recorded within the purchase accounting measurement period that ended in the third quarter of 2019.

As of December 31, 2019, the Company's aggregate provision for unrecognized tax benefits, including interest and penalties, was \$88.8 million, associated with various tax positions principally asserted in foreign jurisdictions, none of which is individually material. Of this total, \$33.7 million is associated with Frutarom, of which \$20.4 million was recorded within the purchase accounting measurement period that ended in the third quarter of 2019.

Other

Tax benefits credited to Shareholders' equity were \$0.1 million for the year ended December 31, 2019, de minimis for the year ended December 31, 2018, and \$0.1 million for the year ended December 31, 2017 associated with stock option exercises and PRSU dividends.

The Company regularly repatriates earnings from non-U.S. subsidiaries. In the fourth quarter of 2018, the Company changed its assertion as part of its final analysis under Staff Accounting Bulletin No. 118, consistent with the Company's need to repatriate funds for debt repayment purposes. As the Company repatriates these funds to the U.S. they will be required to pay income taxes in certain U.S. states and applicable foreign withholding taxes during the period when such repatriation occurs. Accordingly, as of December 31, 2019, the Company had a deferred tax liability of \$46.1 million for the effect of repatriating the funds to the U.S. We reversed a deferred tax liability of \$43.7 million associated with Frutarom in the purchase accounting measurement period as we intend to indefinitely reinvest the earnings in the Frutarom subsidiaries to fund local operations and/or capital projects.

The Company has ongoing income tax audits and legal proceedings which are at various stages of administrative or judicial review, of which the material items are discussed below. In addition, the Company has other ongoing tax audits and legal proceedings that relate to indirect taxes, such as value-added taxes, capital tax, sales and use and property taxes, which are discussed in Note 20.

The Company also has several other tax audits in process and has open tax years with various taxing jurisdictions that range primarily from 2009 to 2018. Based on currently available information, the Company does not believe the ultimate outcome of any of these tax audits and other tax positions related to open tax years, when finalized, will have a material impact on its financial position.

NOTE 11. REVENUE RECOGNITION

On December 30, 2017, the first day of our 2018 fiscal year, the Company adopted ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)". Under Topic 606 (the "Revenue Standard"), revenue is recognized to reflect the transfer of goods or services to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services.

As the Company adopted the Revenue Standard using the modified retrospective method effective the first day of its 2018 fiscal year, results for its 2018 fiscal year are presented under the Revenue Standard while prior period amounts are not adjusted and continue to be reported in accordance with the Company's historic accounting under ASC Topic 605, which required that revenue was accounted for when the earnings process was complete.

The Company recognizes revenue when control of the promised goods is transferred to its customers in an amount that reflects the consideration it expects to be entitled to in exchange for those goods. Sales, value added, and other taxes the Company collects are excluded from revenues. The Company receives payment in accordance with standard customer terms.

The following table presents the Company's revenues disaggregated by product categories:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017 ^(a)
Flavor Compounds	\$ 2,850,498	\$ 1,990,985	\$ 1,632,166
Fragrance Compounds	1,543,834	1,496,493	1,424,612
Ingredients	745,752	490,061	341,941
Total revenues	<u>\$ 5,140,084</u>	<u>\$ 3,977,539</u>	<u>\$ 3,398,719</u>

(a) Prior period amounts have not been adjusted based on the modified retrospective method.

The following table presents the Company's revenues disaggregated by region, based on the region of their customers:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017 ^(a)
Europe, Africa and Middle East	\$ 2,081,758	\$ 1,396,316	\$ 1,065,596
Greater Asia	1,162,992	991,015	903,546
North America	1,170,497	1,010,126	901,821
Latin America	724,837	580,082	527,756
Total revenues	<u>\$ 5,140,084</u>	<u>\$ 3,977,539</u>	<u>\$ 3,398,719</u>

(a) Prior period amounts have not been adjusted based on the modified retrospective method.

Flavor and Fragrance Compounds Revenues

The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties and payment terms (which vary by customer) are identified, the contract has commercial substance, and collectability of consideration is probable. Consistent with the Company's past practice, the amount of revenue recognized is adjusted at the time of sale for expected discounts and rebates ("Variable Consideration").

The Company generates revenues primarily by manufacturing customized taste and scent compounds for the exclusive use of our customers. The Company combines the shipment of goods with their manufacture to account for both shipment and manufacture as the sole performance obligation.

With respect to the vast majority of the Company's contracts for Compounds products, the Company recognizes a sale at the point in time when it ships the product from its manufacturing facility to its customer, as this is the time when control of the goods has transferred to the customer. The amount of consideration received and revenue recognized is impacted by the Variable Consideration the Company has agreed with its customers. The Company estimates Variable Consideration amounts for each customer based on the specific agreement, an analysis of historical volumes and the current activity with that customer. The Company reassesses its estimates of Variable Consideration at each reporting date throughout the contract period and updates the estimate until the uncertainty is resolved. During the current period, changes to estimates of Variable Consideration have been immaterial.

With respect to a small number of contracts for the sale of Compounds products, the Company recognizes revenue over time as it manufactures customized compounds that do not have an alternative use and for which the contracts provide the Company with an enforceable right to payment, including a reasonable profit, at all times during the contract term commencing with the manufacturing of the goods. When revenue is recognized over time, the amount of revenue recognized is based on the extent of progress towards completion of the promised goods. The Company generally uses the output method to measure progress for its contracts as this method reflects the transfer of goods to the customer. Once customization begins, the manufacturing process is generally completed within a two week period. Due to the short time frame for production, there is little estimation uncertainty in the process. In addition, due to the customized nature of the Company's products, returns are not material.

Ingredients Revenues

The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties and payment terms (which vary by customer) are identified, the contract has commercial substance, and collectability of consideration is probable.

The Company generates revenues primarily by manufacturing Ingredients products for the use of our customers. The Company combines the shipment of goods with their manufacture to account for both shipment and manufacture as the sole performance obligation.

Generally, the Company recognizes a sale at the time when it ships the product from their manufacturing facility to their customer, as this is the point when control of the goods or services has transferred to the customer. The amount of consideration received and revenue recognized is impacted by discounts offered to its customers. The Company estimates discounts based on an analysis of historical experience and current activity. The Company assesses its estimates of discounts at each reporting date throughout the contract period and updates its estimates until the uncertainty has been resolved. During the current period, changes to estimates of discounts have been immaterial.

Contract Asset and Accounts Receivable

With respect to a small number of contracts for the sale of compounds, the Company has an "enforceable right to payment for performance to date" and as the products do not have an alternative use, the Company recognizes revenue for these contracts over time and records a contract asset using the output method. The output method recognizes revenue on the basis of direct measurements of the value to the customer of the goods or services transferred to date relative to the remaining goods or services promised under the contract.

The following table reflects the balances in the Company's contract assets, accounts receivable and contract liabilities for the periods ended December 31, 2019 and December 31, 2018:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Receivables (included in Trade receivables)	\$ 884,428	\$ 946,938
Contract asset - Short term	2,736	487
Contract liabilities - Short term	11,107	1,006

NOTE 12. NET INCOME PER SHARE

Basic and diluted net income per share is based on the weighted average number of shares outstanding. A reconciliation of shares used in the computation of basic and diluted net income per share is as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Net Income			
Net income attributable to IFF stockholders	\$ 455,873	\$ 337,302	\$ 295,665
Less: Increase in redemption value of redeemable noncontrolling interests in excess of earnings allocated	(2,097)	(2,848)	—
Net income available to IFF stockholders	\$ 453,776	\$ 334,454	\$ 295,665
Shares			
Weighted average common shares outstanding (basic) ⁽¹⁾	111,966	87,551	79,070
Adjustment for assumed dilution ⁽²⁾ :			
Stock options and restricted stock awards	356	303	300
SPC portion of the TEUs	985	267	—
Weighted average shares assuming dilution (diluted)	113,307	88,121	79,370
Net Income per Share			
Net income per share - basic	\$ 4.05	\$ 3.81	\$ 3.73
Net income per share - dilutive	4.00	3.79	3.72

(1) For the year ended December 31, 2019 and 2018, the TEUs were assumed to be outstanding at the minimum settlement amount for weighted-average shares for basic earnings per share. See below for details.

(2) Effect of dilutive securities includes dilution under stock plans and incremental impact of TEUs. See below for details.

As discussed in Note 8, the Company issued 16,500,000 TEUs, consisting of a prepaid SPC and a senior amortizing note, for net proceeds of approximately \$800.2 million on September 17, 2018. For the periods outstanding, the SPC portion of the TEUs were assumed to be settled at the minimum settlement amount of 0.3134 shares per SPC for weighted-average shares for basic earnings per share. For diluted earnings per share, the shares were assumed to be settled at a conversion factor based on the VWAP per share of the Company's common stock not to exceed 0.3839 and 0.3711 shares per SPC as of December 31, 2019 and 2018, respectively.

The Company has issued shares of Purchased Restricted Stock ("PRS") and Purchased Restricted Stock Units ("PRSUs") which contain nonforfeitable rights to dividends and thus are considered participating securities which are required to be included in the computation of basic and diluted earnings per share pursuant to the two-class method. The two-class method was not presented since the difference between basic and diluted net income per share for both common shareholders, PRS and PRSU holders was less than \$0.01 per share for each year and the number of PRS and PRSUs outstanding as of December 31, 2019, 2018 and 2017 was immaterial. Net income allocated to such PRS and PRSUs during 2019, 2018 and 2017 was approximately \$1.0 million, \$1.0 million and \$1.0 million, respectively.

An immaterial amount of Stock-Settled Appreciation Rights ("SSARs") were excluded from the computation of diluted net income per share at December 31, 2019, 2018 and 2017.

NOTE 13. SHAREHOLDERS' EQUITY

Dividends

Cash dividends declared per share were \$2.96, \$2.84 and \$2.66 in for the years ended December 31, 2019, 2018 and 2017, respectively. The Consolidated Balance Sheet reflects \$80.0 million of dividends payable at December 31, 2019. This amount relates to a cash dividend of \$0.75 per share declared in December 2019 and paid in January 2020. Dividends declared, but not paid as of December 31, 2018 and December 31, 2017 were \$77.8 million (\$0.73 per share) and \$54.4 million (\$0.69 per share), respectively.

Share Repurchases

In December 2012, the Board of Directors authorized a \$250.0 million share repurchase program, which commenced in the first quarter of 2013. In August 2015, the Board of Directors approved an additional \$250 million share repurchase authorization and extension through December 31, 2017. Based on the total remaining amount of \$56.1 million available under the amended repurchase program as of October 31, 2017, the Board of Directors re-approved on November 1, 2017 a \$250.0 million share repurchase authorization and extension for a total value of \$300.0 million available under the program, which expires on November 1, 2022.

A summary of the stock repurchase activity under the stock repurchase program, reported based on the trade date, is summarized as follows:

<i>(DOLLARS IN THOUSANDS)</i>	Shares Repurchased	Weighted-Average Price per Share	Dollar Amount Repurchased
Year Ended December 31, 2018	108,109	\$ 143.15	\$ 15,475
Year Ended December 31, 2017	459,264	126.44	58,069

Based on the total remaining amount of \$279.7 million available under the repurchase program, 2,213,425 shares, or 2.0% of shares outstanding (based on the market price and weighted average shares outstanding as of December 31, 2019) could be repurchased under the program as of December 31, 2019.

As of May 7, 2018, the Company has suspended their share repurchases.

NOTE 14. STOCK COMPENSATION PLANS

The Company has various equity plans under which its officers, senior management, other key employees and Board of Directors may be granted options to purchase IFF common stock or other forms of stock-based awards. Beginning in 2004, the Company granted Restricted Stock Units (“RSUs”) as the principal element of its equity compensation for all eligible U.S.-based employees and a majority of eligible overseas employees. Vesting of the RSUs is solely time based; the vesting period is primarily 3 years from date of grant. For a small group of employees, primarily overseas, the Company granted stock options prior to 2008.

The cost of all employee stock-based awards are principally recognized on a straight-line attribution basis over their respective vesting periods, net of estimated forfeitures. Total stock-based compensation expense included in the Consolidated Statement of Income and Comprehensive Income was as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Equity-based awards	\$ 34,482	\$ 29,401	\$ 26,567
Liability-based awards	4,128	2,517	6,014
Total stock-based compensation	38,610	31,918	32,581
Less tax benefit	(7,305)	(6,556)	(5,659)
Total stock-based compensation, net of tax	\$ 31,305	\$ 25,362	\$ 26,922

The shareholders of the Company approved the Company’s 2015 Stock Award and Incentive Plan (the “2015 Plan”) on May 6, 2015. The 2015 Plan replaced the Company’s 2010 Stock Award and Incentive Plan (the “2010 Plan”) and provides the source for future deferrals of cash into deferred stock under the Company’s Deferred Compensation Plan (with the Deferred Compensation Plan being deemed a subplan under the 2015 Plan for the sole purpose of funding deferrals under the IFF Share Fund).

Under the 2015 Plan, a total of 1,500,000 shares are authorized for issuance in addition to 1,552,694 shares remaining available under the 2010 plan that were rolled into the 2015 Plan. At December 31, 2019, 928,326 shares were subject to outstanding awards and 1,461,768 shares remained available for future awards under all of the Company’s equity award plans, including the 2015 Plan (excluding shares not yet issued under open cycles of the Company’s Long-Term Incentive Plan).

The Company offers a Long-Term Incentive Plan (“LTIP”) for senior management. The targeted payout is 50% cash and 50% IFF common stock at the end of the three-year cycle and provides for segmentation in which one-fourth of the award vests during each twelve-month period, with the final one-fourth segment vesting over the full three-year period.

Up to and including the 2018-2020 cycle, the LTIP awards were earned based upon the achievement of: (i) defined Economic Profit ("EP") targets (representing one-third of the award value), and (ii) the Company's performance ranking of Total Shareholder Return as a percentile of the S&P 500 ("Relative TSR") (representing two-thirds of the award value). Beginning with the 2019-2021 cycle the LTIP awards are earned based upon the achievement of: (i) Relative TSR targets (now representing one-half of the award value), and (ii) the Company's achievement of a defined Leverage Ratio (representing one-half of the award value).

EP measures operating profitability after considering (i) all operating costs, (ii) income taxes and (iii) a charge for the capital employed in the business. The Leverage Ratio measures Net debt as compared to a measure profitability. When the award is granted, 50% of the target dollar value of the award is converted to a number of "notional" shares based on the closing price at the beginning of the cycle. For those shares whose payout is based on Relative TSR, compensation expense is recognized using a graded-vesting attribution method, while compensation expense for the remainder of the performance shares (EP or Leverage Ratio targets for the applicable cycle) is recognized on a straight-line basis over the vesting period based on the probable outcome of the performance condition.

The 2015-2017 cycle concluded at the end of 2017 and an aggregate 46,091 shares of common stock were issued in March 2017. The 2016-2018 cycle concluded at the end of 2018 and an aggregate 25,394 shares of common stock were issued in March 2019. The 2017-2019 cycle concluded at the end of 2019 and an aggregate 14,579 shares of common stock will be issued in March 2020.

In 2006, the Board of Directors approved the Equity Choice Program (the "Program") for senior management. This program continues under the 2015 Plan. Eligible employees can choose from among three equity alternatives and will be granted such equity awards up to certain dollar awards depending on the participant's employment grade level. A participant may choose among (1) SSARs, (2) RSUs or (3) PRSUs.

SSARs and Options

SSARs are a contractual right to receive the value, in shares of Company stock, of the appreciation in our stock price from the grant date to the date the SSARs are exercised by the participant. SSARs granted become exercisable on the third anniversary of the grant date and have a maximum term of 7 years. SSARs do not require a financial investment by the SSARs grantee. No SSARs were granted in 2017. Stock options require the participant to pay the exercise price at the time they exercise their stock options. No stock options were granted in 2019, 2018 or 2017.

SSARs and options activity was as follows:

<i>(SHARE AMOUNTS IN THOUSANDS)</i>	Shares Subject to SSARs/Options	Weighted Average Exercise Price	SSARs/ Options Exercisable
December 31, 2018	12	\$ 117.21	4
Granted	6	137.82	
Exercised	(3)	60.39	
Canceled	—	—	
December 31, 2019	15	\$ 138.73	1

The weighted average exercise price of SSARs and options exercisable at December 31, 2019, 2018 and 2017 were \$118.10, \$64.96 and \$60.39, respectively.

SSARs and options outstanding at December 31, 2019 was as follows:

Price Range	Number Outstanding (in thousands)	Weighted Average Remaining Contractual Life (in years)	Weighted Average Exercise Price	Aggregate Intrinsic Value (in thousands)
Over \$115	15	5.68	\$ 138.73	\$ —

SSARs and options exercisable as of December 31, 2019 was as follows:

<u>Price Range</u>	<u>Number Exercisable (in thousands)</u>	<u>Weighted Average Remaining Contractual Life (in years)</u>	<u>Weighted Average Exercise Price</u>	<u>Aggregate Intrinsic Value (in thousands)</u>
Over \$115	1	2.34	\$ 118.10	\$ 2

The total intrinsic value of options/SSARs exercised during 2019, 2018 and 2017 totaled \$0.2 million, \$0.1 million and \$1.2 million, respectively.

As of December 31, 2019, there was \$0.3 million of total unrecognized compensation cost related to non-vested SSARs granted; such cost is expected to be recognized over a period of 1.8 years.

Restricted Stock Units

The Company has granted RSUs to eligible employees and members of the Board of Directors. Such RSUs are subject to forfeiture if certain conditions are not met. RSUs principally vest 100% at the end of 3 years and contain no performance criteria provisions. An RSU's fair value is calculated based on the market price of the Company's stock at date of grant, with an adjustment to reflect the fact that such awards do not participate in dividend rights. The aggregate fair value is amortized to expense ratably over the vesting period.

RSU activity was as follows:

	<u>Number of Shares (in thousands)</u>	<u>Weighted Average Grant Date Fair Value Per Share</u>
December 31, 2018	448	\$ 125.99
Granted	230	128.98
Vested	(164)	116.80
Forfeited	(17)	130.85
December 31, 2019	497	\$ 130.24

The total fair value of RSUs that vested during the year ended December 31, 2019 was \$22.4 million.

As of December 31, 2019, there was \$27.8 million of total unrecognized compensation cost related to non-vested RSUs granted under the equity incentive plans; such cost is expected to be recognized over a weighted average period of 1.8 years.

Purchased Restricted Stock and Purchased Restricted Stock Units

In 2014, the grant of awards under the Equity Choice program provided for eligible employees to purchase restricted shares of IFF common stock and deposit them into an escrow account. For each share deposited in escrow by the eligible employee, the Company matched with a grant of a share of restricted stock or, for non-U.S. participants, a restricted stock unit. The shares of restricted stock and restricted stock units generally vest on the third anniversary of the grant date, are subject to continued employment and other specified conditions, and pay dividends if and when paid by the Company. Holders of restricted stock have, in most instances, all of the rights of stockholders, except that they may not sell, assign, pledge or otherwise encumber such shares. The PRSUs provide no such rights. During 2015, the Company modified the program so that all participants, including U.S. participants, began to receive a restricted stock unit instead of a share of restricted stock. Restricted stock units pay dividend equivalents and do not have voting rights.

The following table summarizes the Company's PRSU activity for the years ended December 31, 2019, 2018 and 2017:

<u>(DOLLARS IN MILLIONS)</u>	<u>Issued Shares</u>	<u>Aggregate Purchase Price</u>	<u>Covered Shares</u>
2019	61,991	\$ 8.5	30,996
2018	66,674	9.3	33,337
2017	41,801	5.8	20,901

PRSU activity was as follows:

<i>(SHARE AMOUNTS IN THOUSANDS)</i>	Number of Shares	Weighted Average Grant Date Fair Value Per Share
December 31, 2018	162	\$ 132.96
Granted	62	137.82
Vested	(54)	119.81
Forfeited	(2)	138.97
December 31, 2019	168	\$ 138.96

The total fair value of PRSUs that vested during the year ended December 31, 2019 was \$7.1 million.

As of December 31, 2019, there was \$10.7 million of total unrecognized compensation cost related to non-vested PRSUs granted under the equity incentive plans; such cost is expected to be recognized over a weighted average period of 1.8 years.

Liability Awards

The Company has granted cash-settled RSUs ("Cash RSUs") to eligible employees that are paid out 100% in cash upon vesting. Such RSUs are subject to forfeiture if certain conditions are not met. Cash RSUs principally vest 100% at the end of three years and contain no performance criteria provisions. A Cash RSU's fair value is calculated based on the market price of the Company's stock at the date of the closing period and is accounted for as a liability award. The aggregate fair value is amortized to expense ratably over the vesting period.

Cash RSU activity was as follows:

<i>(SHARE AMOUNTS IN THOUSANDS)</i>	Cash RSUs	Weighted Average Fair Value Per Share
December 31, 2018	92	\$ 132.23
Granted	37	126.35
Vested	(32)	134.68
Forfeited	(2)	132.32
December 31, 2019	95	\$ 126.35

The total fair value of Cash RSUs that vested during the year ended December 31, 2019 was \$4.4 million.

As of December 31, 2019, there was \$5.2 million of total unrecognized compensation cost related to non-vested Cash RSUs granted under the equity incentive plans; such cost is expected to be recognized over a weighted average period of 1.8 years. The aggregate compensation cost will be adjusted based on changes in the Company's stock price.

NOTE 15. SEGMENT INFORMATION

The Company is organized into three reportable operating segments, Taste, Scent and Frutarom; these segments align with the internal structure used to manage these businesses.

Taste is comprised of Flavor Compounds which are sold to the food and beverage industries for use in consumer products such as prepared foods, beverages, dairy, food and sweet products.

Scent is comprised of (1) Fragrance Compounds, which are ultimately used by our customers in two broad categories: Fine Fragrances, including perfumes and colognes, and Consumer Fragrances, including fragrance compounds for personal care (e.g., soaps), household products (e.g., detergents and cleaning agents) and beauty care, including toiletries; (2) Fragrance Ingredients, consisting of synthetic and natural ingredients that can be combined with other materials to create unique fine fragrance and consumer compounds; and (3) Cosmetic Active Ingredients, consisting of active and functional ingredients, botanicals and delivery systems to support our customers' cosmetic and personal care product lines. Major fragrance customers include the cosmetics industry, including perfume and toiletries manufacturers, and the household products industry, including manufacturers of soaps, detergents, fabric care, household cleaners and air fresheners.

Frutarom creates and manufactures a naturals-focused suite of flavor compounds, functional foods and specialty fine ingredients, largely targeting small, local and regional customers. Frutarom's products are focused on the following principal areas: Taste, Savory Solutions, Inclusions, Fine Ingredients, and Natural Product Solutions.

The Company's Chief Operating Decision Maker evaluates the performance of these reportable operating segments based on segment profit which is defined as operating profit before restructuring, global expenses (as discussed below) and certain non-recurring items, Interest expense, Other income (expense), net and Taxes on income.

The Global expenses caption represents corporate and headquarter-related expenses which include legal, finance, human resources, certain incentive compensation expenses and other R&D and administrative expenses that are not allocated to individual reportable operating segments.

Reportable segment information is as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Net sales			
Taste	\$ 1,731,919	\$ 1,737,349	\$ 1,632,166
Scent	1,922,717	1,880,630	1,766,553
Frutarom	1,485,448	359,560	N/A
Consolidated	<u>\$ 5,140,084</u>	<u>\$ 3,977,539</u>	<u>\$ 3,398,719</u>

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Segment assets		
Taste	\$ 2,222,154	\$ 2,024,573
Scent	2,549,113	2,340,131
Frutarom	8,306,003	7,961,538
Global assets	210,141	563,153
Consolidated	<u>\$ 13,287,411</u>	<u>\$ 12,889,395</u>

	December 31,		
	2019	2018	2017
<i>(DOLLARS IN THOUSANDS)</i>			
Segment profit:			
Taste	\$ 382,590	\$ 395,190	\$ 360,483
Scent	333,522	329,548	318,954
Frutarom	126,804	27,358	N/A
Global expenses	(49,836)	(74,730)	(60,810)
Operational Improvement Initiatives (a)	(2,267)	(2,169)	(1,802)
Acquisition Related Costs (b)	—	1,289	(20,389)
Integration Related Costs (c)	(55,160)	(7,188)	(4,179)
Legal Charges/Credits, net (d)	—	—	(1,000)
Tax Assessment (e)	—	—	(5,331)
Restructuring and Other Charges, net (f)	(29,765)	(4,086)	(19,711)
(Losses) gains on Sale of Assets	(2,367)	1,177	184
FDA Mandated Product Recall (g)	(250)	7,125	(11,000)
UK Pension Settlement Charges (h)	—	—	(2,769)
Frutarom Acquisition Related Costs (i)	(5,940)	(89,632)	—
Compliance Review & Legal Defense Costs (j)	(11,314)	—	—
N&B Transaction Related Costs (k)	(20,747)	—	—
Operating Profit	665,270	583,882	552,630
Interest expense	(138,221)	(132,558)	(65,363)
Loss on extinguishment of debt	—	(38,810)	—
Other income, net	30,403	35,243	49,778
Income before taxes	\$ 557,452	\$ 447,757	\$ 537,045
Profit margin			
Taste	22.1%	22.7%	22.1%
Scent	17.3%	17.5%	18.1%
Frutarom	8.5%	7.6%	N/A
Consolidated	12.9%	14.7%	16.3%

- (a) For 2019, represents accelerated depreciation related to plant relocations in India and China. For 2018, represents accelerated depreciation in India and Taiwan asset write off. For 2017, represents accelerated depreciation and idle labor costs in Hangzhou, China.
- (b) For 2018, represents adjustments to the contingent consideration payable for PowderPure, and transaction costs related to Fragrance Resources and PowderPure within Selling and administrative expenses. For 2017, represents the amortization of inventory "step-up" included in Cost of goods sold and transaction costs related to the acquisition of Fragrance Resources and PowderPure within Selling and administrative expenses.
- (c) For 2019 and 2018, represents costs related to the integration of the Frutarom acquisition, principally advisory services. For 2017, represents costs related to the integration of the David Michael and Fragrance Resources acquisitions.
- (d) Represents an additional charge related to litigation settlement.
- (e) Represents the reserve for payment of a tax assessment related to commercial rent for prior periods.
- (f) For 2019, represents costs primarily related to the Frutarom Integration Initiative, the 2019 Severance Program, including severance related to outsourcing the IT function. For 2018, represents severance costs related to the 2017 Productivity Program and costs associated with the termination of agent relationships in a subsidiary. For 2017, represents severance costs related to the 2017 Productivity Program.
- (g) For 2019, represents additional claims that management will pay to co-packers. For 2018, principally represents recoveries from the supplier for the third and fourth quarter, partially offset by final payments to the customer made for the effected product in the first quarter. For 2017, represents management's best estimate of losses related to the previously disclosed FDA mandated recall.
- (h) Represents pension settlement charges incurred in one of the Company's UK pension plans.
- (i) Represents transaction-related costs and expenses related to the acquisition of Frutarom. For 2019, amount primarily includes amortization for inventory "step-up" costs and transaction costs. For 2018, amount primarily includes \$23.5 million of amortization for inventory "step-up" costs and \$66.0 million of transaction costs included in Selling and administrative expenses.
- (j) Costs related to reviewing the nature of inappropriate payments and review of compliance in certain other countries. In addition, includes legal costs for related shareholder lawsuits.
- (k) Represents costs and expenses related to the pending transaction with Nutrition & Biosciences Inc.

The Company has not disclosed revenues at a lower level than provided herein, such as revenues from external customers by product, as it is impracticable for it to do so.

The Company had no customers that accounted for greater than 10% of consolidated net sales in 2019 and 2018. The Company had one customer that accounted for greater than 10% of consolidated net sales in 2017. The Company's largest customer had net sales of \$336.1 million, \$356.8 million and \$358.5 million in 2019, 2018 and 2017, respectively. The majority of these sales were in the Scent reportable operating segment.

Long-lived assets, net, by country, consisted as follows:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
United States	\$ 382,659	\$ 315,320
Netherlands	91,313	103,997
Singapore	68,751	73,544
China	188,194	178,502
Other	656,003	569,789
Consolidated	<u>\$ 1,386,920</u>	<u>\$ 1,241,152</u>

Segment capital expenditures and depreciation and amortization consisted as follows:

<i>(DOLLARS IN THOUSANDS)</i>	Capital Expenditures			Depreciation and Amortization		
	2019	2018	2017	2019	2018	2017
Taste	\$ 80,267	\$ 70,028	\$ 68,937	\$ 56,674	\$ 54,534	\$ 53,534
Scent	92,077	82,206	53,089	65,386	64,018	59,951
Frutarom	55,356	12,878	N/A	194,956	47,738	N/A
Global assets	8,278	4,982	6,947	6,314	7,502	4,482
Consolidated	\$ 235,978	\$ 170,094	\$ 128,973	\$ 323,330	\$ 173,792	\$ 117,967

Net sales are attributed to individual regions based upon the destination of product delivery and are as follows:

<i>(DOLLARS IN THOUSANDS)</i>	Net Sales by Geographic Area		
	2019	2018	2017
Europe, Africa and Middle East	\$ 2,081,758	\$ 1,396,316	\$ 1,065,596
Greater Asia	1,162,992	991,015	903,546
North America	1,170,497	1,010,126	901,821
Latin America	724,837	580,082	527,756
Consolidated	\$ 5,140,084	\$ 3,977,539	\$ 3,398,719

<i>(DOLLARS IN THOUSANDS)</i>	Net Sales by Geographic Area		
	2019	2018	2017
Net sales related to the U.S.	\$ 1,052,654	\$ 952,550	\$ 864,050
Net sales attributed to all foreign countries	4,087,430	3,024,989	2,534,669

No non-U.S. country had net sales in any period presented greater than 6% of total consolidated net sales.

Pending change in Reportable Operating Segments

As part of the Company's Frutarom Integration Initiative, the reportable operating segments have been realigned such that beginning in fiscal year 2020 there will be two reportable operating segments: Scent and Taste. The financial results presented in this Form 10-K reflect the Scent, Taste and Frutarom business segments prior to the realignment.

NOTE 16. EMPLOYEE BENEFITS

The Company has pension and/or other retirement benefit plans covering approximately one-fifth of active employees. In 2007, the Company amended its U.S. qualified and non-qualified pension plans under which accrual of future benefits was suspended for all participants that did not meet the rule of 70 (age plus years of service equal to at least 70 as of December 31, 2007). Pension benefits are generally based on years of service and compensation during the final years of employment. Plan assets consist primarily of equity securities and corporate and government fixed income securities. Substantially all pension benefit costs are funded as accrued; such funding is limited, where applicable, to amounts deductible for income tax purposes. Certain other retirement benefits are provided by general corporate assets.

The Company sponsors a qualified defined contribution plan covering substantially all U.S. employees. Under this plan, the Company matches 100% of participants' contributions up to 4% of compensation and 75% of participants' contributions from over 4% to 8%. Employees that are still eligible to accrue benefits under the pension plans are limited to a 50% match of up to 6% of the participants' compensation.

In addition to pension benefits, certain health care and life insurance benefits are provided to qualifying U.S. employees upon retirement from IFF. Such coverage is provided through insurance plans with premiums based on benefits paid. The Company does not generally provide health care or life insurance coverage for retired employees of foreign subsidiaries; such benefits are provided in most foreign countries by government-sponsored plans, and the cost of these programs is not material.

The Company offers a non-qualified Deferred Compensation Plan ("DCP") for certain key employees and non-employee directors. Eligible employees and non-employee directors may elect to defer receipt of salary, incentive payments and Board of Directors' fees into participant-directed investments which are generally invested by the Company in individual variable life

insurance contracts it owns that are designed to informally fund savings plans of this nature. The cash surrender value of life insurance is based on the net asset values of the underlying funds available to plan participants. At December 31, 2019 and December 31, 2018, the Consolidated Balance Sheet reflects liabilities of \$50.9 million and \$43.6 million, respectively, related to the DCP in Other liabilities and \$28.2 million and \$22.2 million, respectively, included in Capital in excess of par value related to the portion of the DCP that will be paid out in IFF shares.

The total cash surrender value of life insurance contracts the Company owns in relation to the DCP and post-retirement life insurance benefits amounted to \$47.6 million and \$43.2 million at December 31, 2019 and 2018, respectively, and are recorded in Other assets in the Consolidated Balance Sheet.

The plan assets and benefit obligations of the defined benefit pension plans are measured at December 31 of each year.

<i>(DOLLARS IN THOUSANDS)</i>	U.S. Plans			Non-U.S. Plans		
	2019	2018	2017	2019	2018	2017
Components of net periodic benefit cost						
Service cost for benefits earned ⁽¹⁾	\$ 1,378	\$ 1,971	\$ 2,175	\$ 19,319	\$ 18,738	\$ 18,652
Interest cost on projected benefit obligation ⁽²⁾	21,954	19,393	20,075	17,775	17,704	17,116
Expected return on plan assets ⁽²⁾	(27,927)	(30,994)	(35,577)	(43,480)	(50,546)	(50,626)
Net amortization of deferrals ⁽²⁾	5,464	6,592	5,424	11,654	11,798	14,403
Settlements and curtailments ⁽²⁾	—	—	—	189	—	2,746
Net periodic benefit cost	869	(3,038)	(7,903)	5,457	(2,306)	2,291
Defined contribution and other retirement plans	9,363	10,527	8,604	9,001	6,859	5,681
Total expense	\$ 10,232	\$ 7,489	\$ 701	\$ 14,458	\$ 4,553	\$ 7,972
Changes in plan assets and benefit obligations recognized in OCI						
Net actuarial (gain) loss	\$ (3,140)	\$ 21,050		\$ 61,865	\$ 11,937	
Recognized actuarial loss	(5,421)	(6,549)		(12,479)	(12,590)	
Prior service cost	—	—		—	2,776	
Recognized prior service (cost) credit	(43)	(43)		636	792	
Currency translation adjustment	—	—		6,584	(16,978)	
Total (gain) loss recognized in OCI (before tax effects)	\$ (8,604)	\$ 14,458		\$ 56,606	\$ (14,063)	

(1) Included as a component of Operating Profit.

(2) Included as a component of Other Income (Expense), net.

<i>(DOLLARS IN THOUSANDS)</i>	Postretirement Benefits		
	2019	2018	2017
Components of net periodic benefit cost			
Service cost for benefits earned	\$ 568	\$ 755	\$ 718
Interest cost on projected benefit obligation	2,265	2,460	2,710
Net amortization and deferrals	(4,919)	(5,497)	(4,913)
Total credit	\$ (2,086)	\$ (2,282)	\$ (1,485)
Changes in plan assets and benefit obligations recognized in OCI			
Net actuarial loss	\$ 3,941	\$ (6,677)	
Recognized actuarial loss	(1,132)	(1,506)	
Prior service credit	—	(14,862)	
Recognized prior service credit	6,051	7,003	
Total recognized in OCI (before tax effects)	\$ 8,860	\$ (16,042)	

The amounts expected to be recognized in net periodic cost in 2020 are:

<i>(DOLLARS IN THOUSANDS)</i>	U.S. Plans	Non-U.S. Plans	Postretirement Benefits
Actuarial loss recognition	\$ 7,388	\$ 15,851	\$ 1,367
Prior service cost (credit) recognition	43	(345)	(5,964)

The weighted-average actuarial assumptions used to determine expense at December 31 of each year are:

	U.S. Plans			Non-U.S. Plans		
	2019	2018	2017	2019	2018	2017
Discount rate	4.31%	3.69%	4.19%	2.22%	2.15%	2.14%
Expected return on plan assets	5.60%	6.20%	7.30%	4.87%	5.19%	5.95%
Rate of compensation increase	3.25%	3.25%	3.25%	1.93%	1.98%	1.97%

Changes in the postretirement benefit obligation and plan assets, as applicable, are detailed in the following table:

<i>(DOLLARS IN THOUSANDS)</i>	U.S. Plans		Non-U.S. Plans		Postretirement Benefits	
	2019	2018	2019	2018	2019	2018
Benefit obligation at beginning of year	\$ 562,043	\$ 602,783	\$ 957,935	\$ 973,061	\$ 59,625	\$ 82,714
Service cost for benefits earned	1,378	1,971	19,319	18,738	568	755
Interest cost on projected benefit obligation	21,954	19,393	17,775	17,704	2,265	2,460
Actuarial (gain) loss	68,839	(33,284)	119,891	(29,433)	3,941	(6,677)
Plan amendments	—	—	—	2,776	—	(14,862)
Adjustments for expense/tax contained in service cost	—	—	(1,333)	(1,290)	—	—
Plan participants' contributions	—	—	2,803	2,047	437	435
Benefits paid	(33,560)	(32,093)	(28,977)	(33,862)	(2,662)	(5,200)
Curtailments / settlements	—	—	(3,455)	(2,751)	—	—
Translation adjustments	—	—	13,935	(49,027)	—	—
Acquisitions/Transferred Liabilities	—	3,273	—	48,356	—	—
Other	—	—	1,191	11,616	—	—
Benefit obligation at end of year	<u>\$ 620,654</u>	<u>\$ 562,043</u>	<u>\$ 1,099,084</u>	<u>\$ 957,935</u>	<u>\$ 64,174</u>	<u>\$ 59,625</u>
Fair value of plan assets at beginning of year	\$ 532,381	\$ 581,917	\$ 896,782	\$ 929,810		
Actual return on plan assets	99,904	(23,339)	100,163	6,699		
Employer contributions	3,683	3,524	20,031	18,238		
Participants' contributions	—	—	2,803	2,047		
Benefits paid	(33,560)	(32,093)	(28,977)	(33,862)		
Settlements	—	—	(3,455)	(1,564)		
Translation adjustments	—	—	16,982	(47,247)		
Acquisitions/Transferred Assets	—	2,372	—	21,672		
Other	—	—	954	989		
Fair value of plan assets at end of year	<u>\$ 602,408</u>	<u>\$ 532,381</u>	<u>\$ 1,005,283</u>	<u>\$ 896,782</u>		
Funded status at end of year	<u>\$ (18,246)</u>	<u>\$ (29,662)</u>	<u>\$ (93,801)</u>	<u>\$ (61,153)</u>		

The amounts recognized in the balance sheet are detailed in the following table:

	U.S. Plans		Non-U.S. Plans	
	2019	2018	2019	2018
<i>(DOLLARS IN THOUSANDS)</i>				
Other assets	\$ 35,239	\$ 20,949	\$ 50,418	\$ 54,434
Other current liabilities	(4,193)	(4,092)	(1,179)	(882)
Retirement liabilities	(49,292)	(46,519)	(143,040)	(114,705)
Net amount recognized	\$ (18,246)	\$ (29,662)	\$ (93,801)	\$ (61,153)

The amounts recognized in AOCI are detailed in the following table:

	U.S. Plans		Non-U.S. Plans		Postretirement Benefits	
	2019	2018	2019	2018	2019	2018
<i>(DOLLARS IN THOUSANDS)</i>						
Net actuarial loss	\$ 142,828	\$ 151,389	\$ 376,991	\$ 321,144	\$ 15,436	\$ 12,627
Prior service cost (credit)	108	151	(3,087)	(3,926)	(27,138)	(33,189)
Total AOCI (before tax effects)	\$ 142,936	\$ 151,540	\$ 373,904	\$ 317,218	\$ (11,702)	\$ (20,562)

	U.S. Plans		Non-U.S. Plans	
	2019	2018	2019	2018
<i>(DOLLARS IN THOUSANDS)</i>				
Accumulated Benefit Obligation — end of year	\$ 618,486	\$ 559,775	\$ 1,062,515	\$ 923,586
Information for Pension Plans with an ABO in excess of Plan Assets:				
Projected benefit obligation	\$ 55,714	\$ 52,714	\$ 656,574	\$ 582,466
Accumulated benefit obligation	55,671	52,690	620,087	548,116
Fair value of plan assets	2,229	2,103	512,356	466,878
Weighted-average assumptions used to determine obligations at December 31				
Discount rate	3.26%	4.31%	1.50%	2.22%
Rate of compensation increase	3.25%	3.25%	2.48%	1.91%

	U.S. Plans		Non-U.S. Plans		Postretirement Benefits
<i>(DOLLARS IN THOUSANDS)</i>					
Estimated Future Benefit Payments					
2020	\$	37,152	\$	27,460	\$ 3,808
2021		37,908		27,607	3,845
2022		38,411		28,169	3,805
2023		38,796		28,993	3,797
2024		38,831		30,142	3,891
2025 - 2029		189,425		169,438	19,442
Contributions					
Required Company Contributions in Following Year (2020)	\$	4,387	\$	20,944	\$ 3,808

The Company considers a number of factors in determining and selecting assumptions for the overall expected long-term rate of return on plan assets. The Company considers the historical long-term return experience of its assets, the current and expected allocation of its plan assets and expected long-term rates of return. The Company derives these expected long-term rates of return with the assistance of its investment advisors. The Company bases its expected allocation of plan assets on a diversified portfolio consisting of domestic and international equity securities, fixed income, real estate and alternative asset classes. The asset allocation is monitored on an ongoing basis.

The Company considers a variety of factors in determining and selecting its assumptions for the discount rate at December 31. For the U.S. plans, the discount rate was based on the internal rate of return for a portfolio of high quality bonds rated Aa or higher by either Moody's or Standard & Poor's with maturities that are consistent with the projected future benefit payment obligations of the plan. For the Non-U.S. Plans, the discount rates were determined by region and are based on high

quality long-term corporate bonds. Consideration has been given to the duration of the liabilities in each plan when selecting the bonds to be used in determining the discount rate. The rate of compensation increase for all plans and the medical cost trend rate for the applicable U.S. plans are based on plan experience.

The percentage of assets in the Company's pension plans, by type, is as follows:

	U.S. Plans		Non-U.S. Plans	
	2019	2018	2019	2018
Cash and cash equivalents	1%	1%	1%	3%
Equities	13%	25%	14%	12%
Fixed income	86%	74%	37%	36%
Property	—%	—%	8%	8%
Alternative and other investments	—%	—%	40%	41%

With respect to the U.S. plans, the expected return on plan assets was determined based on an asset allocation model using the current target allocation, real rates of return by asset class and an anticipated inflation rate. The target investment allocation is 20% equity securities and 80% fixed income securities.

The expected annual rate of return for the non-U.S. plans employs a similar set of criteria adapted for local investments, inflation rates and in certain cases specific government requirements. The target asset allocation, for the non-U.S. plans, consists of approximately: 35% in fixed income securities; 35% in alternative investments; 15% in equity securities; and 15% in real estate.

The following tables present the Company's plan assets for the U.S. and non-U.S. plans using the fair value hierarchy as of December 31, 2019 and 2018. The plans' assets were accounted for at fair value and are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement requires judgment, and may affect the valuation of fair value assets and their placement within the fair value hierarchy levels. For more information on a description of the fair value hierarchy, see Note 17.

	U.S. Plans for the Year Ended December 31, 2019			
	Level 1	Level 2	Level 3	Total
<i>(DOLLARS IN THOUSANDS)</i>				
Cash Equivalents	\$ —	\$ 4,431	\$ —	\$ 4,431
Fixed Income Securities				
Government & Government Agency Bonds	—	19,427	—	19,427
Corporate Bonds	—	112,137	—	112,137
Municipal Bonds	—	8,460	—	8,460
Assets measured at net asset value⁽¹⁾	—	—	—	456,606
Total	\$ —	\$ 144,455	\$ —	\$ 601,061
Receivables				\$ 1,347
Total				\$ 602,408

**U.S. Plans for the Year Ended
December 31, 2018**

<i>(DOLLARS IN THOUSANDS)</i>	Level 1	Level 2	Level 3	Total
Cash Equivalents	\$ —	\$ 3,490	\$ —	\$ 3,490
Fixed Income Securities				
Government & Government Agency Bonds	—	17,827	—	17,827
Corporate Bonds	—	96,566	—	96,566
Municipal Bonds	—	8,138	—	8,138
Assets measured at net asset value⁽¹⁾	—	—	—	404,895
Total	<u>\$ —</u>	<u>\$ 126,021</u>	<u>\$ —</u>	<u>\$ 530,916</u>
Receivables				\$ 1,465
Total				<u>\$ 532,381</u>

- (1) Investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in the table above are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the Consolidated Balance Sheet. The total amount measured at net asset value includes approximately \$80.4 million and \$133.1 million in pooled equity funds and \$376.0 million and \$271.8 million in fixed income mutual funds for the years ended December 31, 2019 and 2018, respectively.

**Non-U.S. Plans for the Year Ended
December 31, 2019**

<i>(DOLLARS IN THOUSANDS)</i>	Level 1	Level 2	Level 3	Total
Cash	\$ 5,921	\$ —	\$ —	\$ 5,921
Equity Securities				
U.S. Large Cap	58,926	25,616	—	84,542
Non-U.S. Large Cap	24,720	—	—	24,720
Non-U.S. Mid Cap	956	—	—	956
Non-U.S. Small Cap	738	—	—	738
Emerging Markets	27,374	—	—	27,374
Fixed Income Securities				
U.S. Treasuries/Government Bonds	108	—	—	108
U.S. Corporate Bonds	—	32,013	—	32,013
Non-U.S. Treasuries/Government Bonds	117,890	—	—	117,890
Non-U.S. Corporate Bonds	33,320	150,034	—	183,354
Non-U.S. Asset-Backed Securities	—	33,654	—	33,654
Non-U.S. Other Fixed Income	2,553	—	—	2,553
Alternative Types of Investments				
Insurance Contracts	—	152,025	266	152,291
Derivative Financial Instruments	—	65,016	—	65,016
Absolute Return Funds	3,431	154,463	—	157,894
Other	—	2,330	30,183	32,513
Real Estate				
Non-U.S. Real Estate	—	—	83,746	83,746
Total	<u>\$ 275,937</u>	<u>\$ 615,151</u>	<u>\$ 114,195</u>	<u>\$ 1,005,283</u>

**Non-U.S. Plans for the Year Ended
December 31, 2018**

(DOLLARS IN THOUSANDS)

	Level 1	Level 2	Level 3	Total
Cash	\$ 25,386	\$ —	\$ —	\$ 25,386
Equity Securities				
U.S. Large Cap	35,929	11,340	—	47,269
Non-U.S. Large Cap	30,841	8,381	—	39,222
Non-U.S. Mid Cap	905	—	—	905
Non-U.S. Small Cap	628	—	—	628
Emerging Markets	22,608	—	—	22,608
Fixed Income Securities				
U.S. Treasuries/Government Bonds	131	—	—	131
U.S. Corporate Bonds	—	29,682	—	29,682
Non-U.S. Treasuries/Government Bonds	137,267	5,494	—	142,761
Non-U.S. Corporate Bonds	30,893	85,841	—	116,734
Non-U.S. Asset-Backed Securities	—	32,587	—	32,587
Non-U.S. Other Fixed Income	2,324	—	—	2,324
Alternative Types of Investments				
Insurance Contracts	—	152,947	254	153,201
Derivative Financial Instruments	—	54,512	—	54,512
Absolute Return Funds	3,584	128,111	—	131,695
Other	—	2,374	25,913	28,287
Real Estate				
Non-U.S. Real Estate	—	—	68,850	68,850
Total	\$ 290,496	\$ 511,269	\$ 95,017	\$ 896,782

Cash and cash equivalents are primarily held in registered money market funds which are valued using a market approach based on the quoted market prices of identical instruments. Other cash and cash equivalents are valued daily by the fund using a market approach with inputs that include quoted market prices for similar instruments.

Equity securities are primarily valued using a market approach based on the quoted market prices of identical instruments. Pooled funds are typically common or collective trusts valued at their net asset values (NAVs).

Fixed income securities are primarily valued using a market approach with inputs that include broker quotes and benchmark yields.

Derivative instruments are valued by the custodian using closing market swap curves and market derived inputs.

Real estate values are primarily based on valuation of the underlying investments, which include inputs such as cost, discounted future cash flows, independent appraisals and market comparable data.

Hedge funds are valued based on valuation of the underlying securities and instruments within the funds. Quoted market prices are used when available and NAVs are used for unquoted securities within the funds.

Absolute return funds are actively managed funds mainly invested in debt and equity securities and are valued at their NAVs.

The following table presents a reconciliation of Level 3 non-U.S. plan assets held during the year ended December 31, 2019:

	Non-U.S. Plans		
	Real Estate	Hedge Funds	Total
<i>(DOLLARS IN THOUSANDS)</i>			
Ending balance as of December 31, 2018	\$ 69,104	\$ 25,913	\$ 95,017
Actual return on plan assets	15,033	5,811	20,844
Purchases, sales and settlements	(124)	(1,542)	(1,666)
Ending balance as of December 31, 2019	\$ 84,013	\$ 30,182	\$ 114,195

The following weighted average assumptions were used to determine the postretirement benefit expense and obligation for the years ended December 31:

	Expense		Liability	
	2019	2018	2019	2018
Discount rate	4.30%	3.70%	3.30%	4.30%
Current medical cost trend rate	7.50%	7.75%	7.25%	7.50%
Ultimate medical cost trend rate	4.75%	4.75%	4.75%	4.75%
Medical cost trend rate decreases to ultimate rate in year	2030	2030	2030	2030

The following table presents the sensitivity of disclosures to changes in selected assumptions for the year ended December 31, 2019:

<i>(DOLLARS IN THOUSANDS)</i>	U.S. Pension Plans	Non-U.S. Pension Plans	Postretirement Benefit Plan
	25 Basis Point Decrease in Discount Rate		
Change in PBO	14,613	55,415	N/A
Change in ABO	14,534	55,374	1,944
Change in pension expense	(102)	2,687	40
25 Basis Point Decrease in Long-Term Rate of Return			
Change in pension expense	1,248	1,935	N/A

The Company contributed \$20.0 million to its non-U.S. pension plans in 2019. No contributions were made to the Company's qualified U.S. pension plans in 2019. The Company made \$3.7 million in benefit payments with respect to its non-qualified U.S. pension plan. In addition, \$2.7 million of payments were made with respect to the Company's other postretirement plans.

NOTE 17. FINANCIAL INSTRUMENTS

Fair Value

Accounting guidance on fair value measurements specifies a hierarchy of valuation techniques based on whether the inputs to those valuation techniques are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. These two types of inputs create the following fair value hierarchy:

- Level 1 — Quoted prices for *identical* instruments in active markets.
- Level 2 — Quoted prices for *similar* instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs and significant value drivers are observable in active markets.
- Level 3 — Valuations derived from valuation techniques in which one or more significant inputs or significant value drivers are unobservable.

This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. The Company determines the fair value of structured liabilities (where performance is linked to structured interest rates, inflation or currency risks) using the London Interbank Offer Rate (“LIBOR”) swap curve and forward interest and exchange rates at period end. Such instruments are classified as Level 2 based on the observability of significant inputs to the model. The Company does not have any instruments classified as Level 3, other than those included in pension asset trusts included in Note 16. These valuations take into consideration the Company’s credit risk and its counterparties’ credit risk.

The carrying value and the estimated fair values of financial instruments at December 31 consisted of the following:

<i>(DOLLARS IN THOUSANDS)</i>	2019		2018	
	Carrying Value	Fair Value	Carrying Value	Fair Value
LEVEL 1				
Cash and cash equivalents ⁽¹⁾	\$ 606,823	\$ 606,823	\$ 634,897	\$ 634,897
LEVEL 2				
Credit facilities and bank overdrafts ⁽²⁾	3,131	3,131	4,695	4,695
Derivatives				
Derivative assets ⁽³⁾	3,575	3,575	7,229	7,229
Derivative liabilities ⁽³⁾	7,415	7,415	6,907	6,907
Long-term debt:⁽⁴⁾				
2020 Notes	299,381	302,700	298,499	300,356
2021 Euro Notes	334,561	338,244	337,704	341,094
2023 Notes	299,004	305,580	298,698	293,017
2024 Euro Notes	558,124	586,825	564,034	584,129
2026 Euro Notes	890,183	945,306	899,886	909,439
2028 Notes	396,688	441,500	396,377	401,231
2047 Notes	493,571	526,106	493,151	446,725
2048 Notes	785,996	919,040	785,788	783,925
Term Loan ⁽²⁾	239,621	240,000	349,163	350,000
Amortizing Notes ⁽⁵⁾	82,079	84,430	125,007	127,879

- (1) The carrying amount of cash and cash equivalents approximates fair value due to the short maturity of those instruments.
- (2) The carrying amount approximates fair value as the interest rate is reset frequently based on current market rates as well as the short maturity of those instruments.
- (3) The carrying amount approximates fair value as the instruments are marked-to-market and held at fair value on the balance sheet.
- (4) The fair value of the Company's long-term debt was calculated using discounted cash flows applying current interest rates and current credit spreads based on its own credit risk.
- (5) The fair value of the Amortizing Notes of the TEUs is based on the most recently quoted price for the outstanding securities, adjusted for any known significant deviation in value. The estimated fair value of these long-term obligations is not necessarily indicative of the amount that would be realized in a current market exchange. See Note 8 for additional information on the TEUs.

Derivatives

Forward Currency Forward Contracts

The Company periodically enters into foreign currency forward contracts with the objective of reducing exposure to cash flow volatility associated with its intercompany loans, foreign currency receivables and payables and anticipated purchases of certain raw materials used in operations. These contracts generally involve the exchange of one currency for a second currency at a future date, have maturities not exceeding twelve months and are with counterparties which are major international financial institutions.

Cash Flow Hedges

During the year ended December 31, 2017, the Company entered into several forward currency contracts which qualified as cash flow hedges. The objective of these hedges is to protect against the currency risk associated with forecasted U.S. dollar ("USD") denominated raw material purchases made by Euro ("EUR") functional currency entities which result from changes in the EUR/USD exchange rate. The effective portions of cash flow hedges are recorded in OCI as a component of Gains/(Losses) on derivatives qualifying as hedges in the accompanying Consolidated Statement of Income and Comprehensive Income. Realized gains/(losses) in AOCI related to cash flow hedges of raw material purchases are recognized as a component of Cost of goods sold in the accompanying Consolidated Statement of Income and Comprehensive Income in the same period as the related costs are recognized.

Hedges Related to Issuances of Debt

Subsequent to the issuance of the 2021 Euro Notes and 2026 Euro Notes during the third quarter of 2018, the Company designated the debt as a hedge of a portion of its net European investments. Accordingly, the change in the value of the debt that is attributable to foreign exchange movements is recorded in OCI as a component of foreign currency translation adjustments in the accompanying Consolidated Statement of Income and Comprehensive Income.

Subsequent to the issuance of the 2024 Euro Notes during the first quarter of 2016, the Company designated the debt as a hedge of a portion of its net European investments. Accordingly, the change in the value of the debt that is attributable to foreign exchange movements is recorded in OCI as a component of foreign currency translation adjustments in the accompanying Consolidated Statement of Income and Comprehensive Income.

During the first quarter of 2016, the Company entered into and terminated two Euro interest rate swap agreements to hedge the anticipated issuance of fixed-rate debt. These swaps were designated as cash flow hedges. The effective portions of cash flow hedges are recorded in OCI as a component of Losses on derivatives qualifying as hedges in the accompanying Consolidated Statement of Income and Comprehensive Income. The Company incurred a loss of €2.9 million (\$3.2 million) due to the termination of these swaps. The loss is being amortized as interest expense over the life of the 2024 Euro Notes as discussed in Note 9.

During the fourth quarter of 2016 and the first quarter of 2017, the Company entered into interest rate swap agreements to hedge the anticipated issuance of fixed-rate debt, which are designated as cash flow hedges. The various hedge instruments were settled upon issuance of the debt on May 18, 2017 and resulted in a loss of approximately \$5.3 million. As discussed in Note 9, the loss is being amortized as interest expense over the life of the 2047 Notes.

Frutarom Acquisition Related Hedges

In the second quarter of 2018, the Company entered into a foreign currency contract and two interest rate swap agreements (collectively, the "Deal Contingent Swaps"), which were contingent upon the closing of the Frutarom acquisition, for a total notional amount of \$1.9 billion. In the third quarter of 2018, the Company completed the offering and sale of the 2018 Senior Unsecured Notes (see Note 9 for additional information) and settled the Deal Contingent Swaps. The Company received \$12.2 million for the foreign currency contract and \$0.4 million for the two interest rate swap agreements which is included in Other income, net and Interest Expense, respectively, in the accompanying Consolidated Statement of Income and Comprehensive Income for the year ended December 31, 2018.

Cross Currency Swaps

In the fourth quarter of 2018, the Company entered into certain cross currency swaps which qualified as net investment hedges in order to mitigate a portion of its net European investments from foreign currency risk. As of December 31, 2018, these swaps were in a net asset position with an aggregate fair value of \$1.1 million. Changes in fair value related to cross currency swaps were recorded in OCI.

During the third quarter of 2019, the Company entered into a transaction to unwind the four cross currency swaps designated as net investment hedges issued in the fourth quarter of 2018 and received proceeds of \$33.6 million, including \$7.7 of interest income. The gain arising from the termination of the swaps has been included as a component of Accumulated other comprehensive loss. Following the termination of the existing swaps, the Company entered into four new EUR/USD cross currency swaps that mature through May 2023 covering the same notional amounts of debt. The new swaps qualified as net investment hedges in order to mitigate a portion of the Company's net European investments from foreign currency risk. As of December 31, 2019, these swaps were in a net liability position with an aggregate fair value of \$4.2 million which was classified as other current liabilities. Changes in fair value related to cross currency swaps are recorded in OCI.

The following table shows the notional amount of the Company's derivative instruments outstanding as of December 31, 2019 and December 31, 2018:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
Foreign currency contracts	\$ 473,600	\$ 585,581
Cross currency swaps	600,000	600,000

The following tables show the Company's derivative instruments measured at fair value (Level 2 of the fair value hierarchy) as reflected in the Consolidated Balance Sheet as of December 31, 2019 and December 31, 2018:

<i>(DOLLARS IN THOUSANDS)</i>	December 31, 2019		
	Fair Value of Derivatives Designated as Hedging Instruments	Fair Value of Derivatives Not Designated as Hedging Instruments	Total Fair Value
Derivative assets ^(a)			
Foreign currency contracts	\$ 1,310	\$ 2,265	\$ 3,575
Derivative liabilities ^(b)			
Foreign currency contracts	797	2,431	3,228
Cross currency swaps	4,187	—	4,187
Total derivative liabilities	\$ 4,984	\$ 2,431	\$ 7,415

<i>(DOLLARS IN THOUSANDS)</i>	December 31, 2018		
	Fair Value of Derivatives Designated as Hedging Instruments	Fair Value of Derivatives Not Designated as Hedging Instruments	Total Fair Value
Derivative assets ^(a)			
Foreign currency contracts	\$ 4,122	\$ 2,020	\$ 6,142
Cross currency swaps	1,087	—	1,087
Total derivative assets	5,209	2,020	7,229
Derivative liabilities ^(b)			
Foreign currency contracts	\$ 205	\$ 6,702	\$ 6,907

(a) Derivative assets are recorded to Prepaid expenses and other current assets in the Consolidated Balance Sheet.

(b) Derivative liabilities are recorded as Other current liabilities in the Consolidated Balance Sheet.

The following table shows the effect of the Company's derivative instruments which were not designated as hedging instruments in the Consolidated Statement of Income and Comprehensive Income for the years ended December 31, 2019 and December 31, 2018:

<i>(DOLLARS IN THOUSANDS)</i>	Amount of Gain (Loss) For the year ended December 31,		Location of Gain (Loss) Recognized in Income on Derivative
	2019	2018	
Foreign currency contracts	\$ 557	\$ 1,999	Other (income) expense, net
Deal contingent swaps			
Foreign currency contracts	—	12,154	Other income, net
Interest rate swaps	—	352	Interest expense
	<u>\$ 557</u>	<u>\$ 14,505</u>	

These net gains (losses) mostly offset any recognized gains (losses) arising from the revaluation of the related intercompany loans during the same respective periods.

The following table shows the effect of the Company's derivative instruments designated as cash flow and net investment hedging instruments, net of tax, in the Consolidated Statement of Income and Comprehensive Income for the years ended December 31, 2019 and December 31, 2018 (in thousands):

	Amount of Gain (Loss) Recognized in OCI on Derivative (Effective Portion)		Location of Gain (Loss) Reclassified from AOCI into Income (Effective Portion)	Amount of Gain (Loss) Reclassified from AOCI into Income (Effective Portion)	
	For the years ended December 31,			For the years ended December 31,	
	2019	2018		2019	2018
Derivatives in Cash Flow Hedging Relationships:					
Foreign currency contracts	\$ (3,535)	\$ 14,220	Cost of goods sold	\$ 8,504	\$ (6,203)
Interest rate swaps ⁽¹⁾	857	864	Interest expense	(857)	(864)
Derivatives or debt instruments in Net Investment Hedging Relationships:					
Foreign currency contracts	—	(518)	N/A	—	—
2024 Euro Notes	5,440	20,539	N/A	—	—
2021 Euro Notes & 2026 Euro Notes	11,969	30,390	N/A	—	—
Total	<u>\$ 14,731</u>	<u>\$ 65,495</u>		<u>\$ 7,647</u>	<u>\$ (7,067)</u>

(1) Interest rate swaps were entered into as pre-issuance hedges for the Company's bond offerings.

The ineffective portion of the above noted cash flow hedges and net investment hedges was not material for the years ended December 31, 2019 and 2018.

The Company expects approximately \$4.7 million (net of tax), of derivative gains included in AOCI at December 31, 2019, based on current market rates, will be reclassified into earnings within the next twelve months. The majority of this amount will vary due to fluctuations in foreign currency exchange rates.

NOTE 18. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The following tables present changes in the accumulated balances for each component of other comprehensive income, including current period other comprehensive income and reclassifications out of accumulated other comprehensive income:

<i>(DOLLARS IN THOUSANDS)</i>	Foreign Currency Translation Adjustments	(Losses) Gains on Derivatives Qualifying as Hedges	Pension and Postretirement Liability Adjustment	Total
Accumulated other comprehensive loss, net of tax, as of December 31, 2018	\$ (396,996)	\$ 4,746	\$ (309,977)	\$ (702,227)
OCI before reclassifications	23,953	4,969	(45,599)	(16,677)
Amounts reclassified from AOCI	—	(7,647)	9,657	2,010
Net current period other comprehensive income (loss)	23,953	(2,678)	(35,942)	(14,667)
Accumulated other comprehensive loss, net of tax, as of December 31, 2019	\$ (373,043)	\$ 2,068	\$ (345,919)	\$ (716,894)

<i>(DOLLARS IN THOUSANDS)</i>	Foreign Currency Translation Adjustments	(Losses) Gains on Derivatives Qualifying as Hedges	Pension and Postretirement Liability Adjustment	Total
Accumulated other comprehensive (loss) income, net of tax, as of December 31, 2017	\$ (297,416)	\$ (10,332)	\$ (329,734)	\$ (637,482)
OCI before reclassifications	(99,580)	8,011	9,717	(81,852)
Amounts reclassified from AOCI	—	7,067	10,040	17,107
Net current period other comprehensive income (loss)	(99,580)	15,078	19,757	(64,745)
Accumulated other comprehensive loss, net of tax, as of December 31, 2018	\$ (396,996)	\$ 4,746	\$ (309,977)	\$ (702,227)

<i>(DOLLARS IN THOUSANDS)</i>	Foreign Currency Translation Adjustments	(Losses) Gains on Derivatives Qualifying as Hedges	Pension and Postretirement Liability Adjustment	Total
Accumulated other comprehensive (loss) income, net of tax, as of December 31, 2016	\$ (352,025)	\$ 7,604	\$ (335,674)	\$ (680,095)
OCI before reclassifications	66,826	(14,782)	(7,941)	44,103
Amounts reclassified from AOCI	(12,217) ^(a)	(3,154)	13,881	(1,490)
Net current period other comprehensive income (loss)	54,609	(17,936)	5,940	42,613
Accumulated other comprehensive (loss) income, net of tax, as of December 31, 2017	\$ (297,416)	\$ (10,332)	\$ (329,734)	\$ (637,482)

(a) Represents a foreign currency exchange gain from the release of a currency translation adjustment upon the liquidation of a foreign entity in 2017.

The following table provides details about reclassifications out of AOCI to the Consolidated Statement of Comprehensive Income:

<i>(DOLLARS IN THOUSANDS)</i>	Year Ended December 31,			Affected Line Item in the Consolidated Statement of Comprehensive Income
	2019	2018	2017	
(Losses) gains on derivatives qualifying as hedges				
Foreign currency contracts	\$ 9,719	\$ (7,089)	\$ 4,506	Cost of goods sold
Interest rate swaps	(857)	(864)	(789)	Interest expense
Tax	(1,215)	886	(563)	Provision for income taxes
Total	\$ 7,647	\$ (7,067)	\$ 3,154	Total, net of income taxes
(Losses) gains on pension and postretirement liability adjustments				
Prior service cost	\$ 6,644	\$ 7,752	\$ 7,040	^(a)
Actuarial losses	(19,032)	(20,645)	(24,699)	^(a)
Tax	2,731	2,853	3,778	Provision for income taxes
Total	\$ (9,657)	\$ (10,040)	\$ (13,881)	Total, net of income taxes

(a) The amortization of prior service cost and actuarial loss is included in the computation of net periodic benefit cost. Refer to Note 16 to the Consolidated Financial Statements for additional information regarding net periodic benefit cost.

NOTE 19. CONCENTRATIONS OF CREDIT RISK

The Company does not have significant concentrations of risk in financial instruments. Temporary investments are made in a well-diversified portfolio of high-quality, liquid obligations of government, corporate and financial institutions. There are also limited concentrations of credit risk with respect to trade receivables because the Company has a large number of customers who are spread across many industries and geographic regions. The Company's larger customers are each spread across many sub-categories of its segments and geographical regions. The Company had one customer that accounted for more than 10% of its consolidated net sales for the year ended 2017, but less than 10% for the years ended 2019 and 2018.

NOTE 20. COMMITMENTS AND CONTINGENCIES

Guarantees and Letters of Credit

The Company has various bank guarantees and letters of credit which are available for use to support its ongoing business operations and to satisfy governmental requirements associated with pending litigation in various jurisdictions.

At December 31, 2019, the Company had total bank guarantees and standby letters of credit of approximately \$53.6 million with various financial institutions. Included in the above aggregate amount is a total of \$16.7 million for other assessments in Brazil for various income tax and indirect tax disputes related to fiscal years 1998-2011. There were no material amounts utilized under the standby letters of credit as of December 31, 2019.

In order to challenge the assessments in these cases in Brazil, the Company has been required to and has separately pledged assets, principally property, plant and equipment to cover assessments in the amount of approximately \$10.0 million as of December 31, 2019.

On December 15, 2019, IFF and N&B entered into a commitment letter which provides \$7.5 billion in an aggregate principal amount of senior unsecured bridge term loans. On January 17, 2020, N&B entered into a term loan credit agreement providing for unsecured term loan facilities in an aggregate principal amount of \$1.25 billion, which reduced the commitments under the Bridge Loans commitment letter by a corresponding amount. N&B will be the initial borrower under the remaining \$6.25 billion tranche of the 364-day senior unsecured bridge facility (or, if applicable, any replacement debt financing), which, together with the Term Loan Facilities, will be used to finance the Special Cash Payment and to pay related fees and expenses. Following the consummation of the merger, all obligations of N&B with respect to the Term Loan Facilities and the Bridge Facility (if any) or, if applicable, the replacement debt financing, will be guaranteed by IFF (or at the election of N&B and IFF, assumed by IFF).

Lines of Credit

The Company has various lines of credit which are available to support its ongoing business operations. As of December 31, 2019, the Company had available lines of credit of \$105.3 million with various financial institutions, in addition to the \$1.0 billion of capacity under the Credit Facility. There were no material amounts drawn down pursuant to these lines of credit as of December 31, 2019.

Litigation

The Company assesses contingencies related to litigation and/or other matters to determine the degree of probability and range of possible loss. A loss contingency is accrued in the Company's consolidated financial statements if it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Because litigation is inherently unpredictable and unfavorable resolutions could occur, assessing contingencies is highly sensitive and requires judgments about future events. On at least a quarterly basis, the Company reviews contingencies related to litigation to determine the adequacy of accruals. The amount of ultimate loss may differ from these estimates and further events may require the Company to increase or decrease the amounts it has accrued on any matter.

Periodically, the Company assesses its insurance coverage for all known claims, where applicable, taking into account aggregate coverage by occurrence, limits of coverage, self-insured retentions and deductibles, historical claims experience and claims experience with its insurance carriers. The liabilities are recorded at management's best estimate of the probable outcome of the lawsuits and claims, taking into consideration the facts and circumstances of the individual matters as well as past experience on similar matters. At each balance sheet date, the key issues that management assesses are whether it is probable that a loss as to asserted or unasserted claims has been incurred and if so, whether the amount of loss can be reasonably estimated. The Company records the expected liability with respect to claims in Other liabilities and expected recoveries from its insurance carriers in Other assets. The Company recognizes a receivable when it believes that realization of the insurance receivable is probable under the terms of the insurance policies and its payment experience to date.

During the third quarter of 2019, in connection with the completion of the measurement period for finalizing the opening balance of Frutarom, the Company recorded an immaterial amount of reserves related to certain legal cases. The reserves were based on the determination that the loss was probable as of October 4, 2018. The amount of future exposure is included in the estimate within the section "Other" below.

Litigation Matters

On August 12, 2019, Marc Jansen filed a putative securities class action against IFF, its Chairman and CEO, and its CFO, in the United States District Court for the Southern District of New York. The lawsuit, which was filed after IFF disclosed that preliminary results of investigations indicated that Frutarom businesses operating principally in Russia and Ukraine had made improper payments to representatives of customers, alleges that defendants made materially false and misleading statements or omissions concerning IFF's acquisition of Frutarom, the integration of the two companies, and IFF's financial reporting and results. The lawsuit brings claims under Section 10(b) of the Securities Exchange Act of 1934 and SEC Rule 10b-5 against all defendants, and under Section 20(a) of the Securities Exchange Act of 1934 against the individual defendants, and was filed on behalf of a putative class of persons and entities who purchased or otherwise acquired IFF securities between May 7, 2018 and August 5, 2019. The complaint seeks an award of unspecified compensatory damages, costs, and expenses. On December 26, 2019, the Court appointed a group of six investment funds as lead plaintiff and Pomerantz LLP as lead counsel.

Two motions to approve securities class actions were filed in the Tel Aviv District Court, Israel in August 2019, similarly alleging, among other things, false and misleading statements largely in connection with IFF's acquisition of Frutarom and the above-mentioned improper payments. Both assert claims under the U.S. federal securities laws against IFF, its Chairman and CEO, and its former CFO. One also asserts claims under the Israeli Securities Act-1968 against IFF, as well as against Frutarom and certain former Frutarom officers and directors, and asserts claims under the Israeli Companies Act-1999 against certain former Frutarom officers and directors.

On October 29, 2019, IFF and Frutarom filed a claim in the Tel Aviv District Court, Israel, against Ori Yehudai, the former President and CEO of Frutarom, and against certain former directors of Frutarom, challenging the bonus of US \$20 million granted to Yehudai in 2018. IFF and Frutarom allege, among other things, that Yehudai was not entitled to receive the bonus because he breached his fiduciary duty by, among other things, knowing of the above-mentioned improper payments and failing to prevent them from being made.

Environmental

During the third quarter of 2019, in connection with the completion of the measurement period for finalizing the opening balance of Frutarom, the Company recorded approximately \$5 million in reserves related to certain environmental liabilities. The reserves were based on the determination that the loss was probable as of October 4, 2018. The amount of future exposure is included in the estimate within the section "Other" below.

China Facilities

Hangzhou Ingredients plant

As previously disclosed, in 2014 the Company agreed to relocate an ingredients facility in Hangzhou, China to Jiande, China. In connection with such relocation, the Company entered into a land swap and relocation agreement with the local authority pursuant to which the Company agreed to transfer ownership of the land underlying the facility in exchange for various elements of compensation, including cash and land use rights for the new facility. The Company initially determined that the gain, if any, would be recognized upon final transfer of ownership. During the fourth quarter of 2019, the Company completed the final environmental cleanup activities and transferred ownership of the land to the local authority. The amount of the gain ultimately recognized in the fourth quarter of 2019 was \$4.4 million. The amount has been recorded as a component of Other income, net.

Guangzhou Taste plant

During the fourth quarter of 2016, the Company was notified that certain governmental authorities have begun to evaluate a change in the zoning of the Guangzhou Taste plant. The zoning, if changed, would prevent the Company from continuing to manufacture product at the existing plant. The ultimate outcome of any change that the governmental authorities may propose, the timing of such a change, and the nature of any compensation arrangements that might be provided to the Company are uncertain. To address the governmental authorities' requirements, the Company has begun to transfer certain production capabilities from the Guangzhou Taste plant to a newly built facility in Zhangjiagang.

The net book value of the plant in Guangzhou was approximately \$61 million as of December 31, 2019.

Guangzhou Scent plant

During the second quarter of 2019, the Company was notified that certain governmental authorities had changed the zoning where the Guangzhou Scent plant is located. The zoning change did not affect the current operations but prevents expansions or other increases in the operating capacity of the plant. The Company believes that it is possible that the zoning may be enforced in the future such that it would not be able to continue manufacturing at the existing site. The ultimate outcome of any change that the governmental authorities may propose, the timing of such a change, and the nature of any compensation arrangements that might be provided to the Company are uncertain.

The net book value of the existing plant was approximately \$9 million as of December 31, 2019.

Zhejiang Ingredients plant

In the fourth quarter of 2017, the Company concluded discussions with the government regarding the relocation of its Fragrance Ingredients plant in Zhejiang and, based on the agreements reached, expects to receive total compensation payments up to approximately \$50 million. The relocation compensation will be paid to the Company over the period of the relocation which is expected to be through the end of 2021. The Company received a payment of \$15 million in both the fourth quarter of 2017 and the second quarter of 2019. The third payment of \$15 million is expected in the first quarter of 2020 with the fourth and final payment expected in the second half of 2020 upon the final environmental inspection.

Production at the facility has ceased as of December 31, 2019. The net book value of the closed plant was approximately \$10 million as of December 31, 2019 related to the land use rights and residual value of the plant building.

Total China Operations

The total net book value of all eight plants in China was approximately \$201 million as of December 31, 2019.

If the Company is required to close a plant, or operate one at significantly reduced production levels on a permanent basis, the Company may be required to record charges that could have a material impact on its consolidated financial results of operations, financial position and cash flows in future periods.

Other Contingencies

The Company has contingencies involving third parties (such as labor, contract, technology or product-related claims or litigation) as well as government-related items in various jurisdictions in which it operates pertaining to such items as value-added taxes, other indirect taxes, customs and duties and sales and use taxes. It is possible that cash flows or results of operations, in any period, could be materially affected by the unfavorable resolution of one or more of these contingencies.

The most significant government-related contingencies exist in Brazil. With regard to the Brazilian matters, the Company believes it has valid defenses for the underlying positions under dispute; however, in order to pursue these defenses, the Company is required to, and has provided, bank guarantees and pledged assets in the aggregate amount of \$27.7 million. The Brazilian matters take an extended period of time to proceed through the judicial process and there are a limited number of rulings to date.

Pending Transaction with Nutrition & Biosciences, Inc.

The Merger Agreement governing the DuPont N&B Transaction, subjects IFF to various contingent payments to the extent that the transaction is not consummated. Specifically, the Merger Agreement provides DuPont the right to receive a termination fee of \$521.5 million, in certain circumstances, including if the agreement is terminated due to the IFF Board changing its recommendation and to reimburse DuPont's transaction-related expenses in an amount up to \$75 million if the Merger Agreement is terminated because IFF's shareholders do not approve the issuance of IFF Common Stock in connection with the transaction.

Investigations

IFF's investigation of allegations that improper payments to representatives of customers were made in Russia and Ukraine has been completed. Such allegations were substantiated, and IFF has confirmed that key members of Frutarom's senior management at the time were aware of such payments. IFF has taken appropriate remedial actions, including replacing senior management in relevant locations, and believes that such improper customer payments have stopped.

IFF has confirmed in these investigations that total affected sales represented less than 1% of the Company's consolidated net sales for 2019. The impact of the reviews, including the costs associated with them, were not material to IFF's results of operations or financial condition. In addition, no evidence was uncovered suggesting that any of these compliance matters had any connection to the United States.

FDA-Mandated Product Recall

The Company periodically incurs product liability claims based on product that is sold to customers that may be defective or otherwise not in accordance with the customer's requirements. In the first quarter of 2017, the Company was made aware of a claim for product that was subject to an FDA-mandated product recall. As of December 31, 2019, the Company had recorded total charges of approximately \$17.5 million with respect to this claim, of which \$5.0 million was recorded in the three months ended March 31, 2018. The Company settled the claim with the customer in the first quarter of 2018 for a total of \$16.0 million, of which \$3.0 million was paid in the fourth quarter of 2017 and \$13.0 million was paid during the three months ended March 31, 2018.

For the year ended 2018, the Company received \$13.1 million for the full and final settlement of its claim from the supplier and insurer for the affected product, which has been recorded as a reduction of cost of sales on the Consolidated Statement of Income and Comprehensive Income.

Brazil Tax Credits

In 2017 the Brazilian Supreme Court ("BSC") ruled that Brazilian tax authorities should not include a value added tax known as "ICMS" in the calculation of certain indirect taxes ("PIS/COFINS"). By removing the ICMS from the calculation of the indirect tax base, the Court effectively eliminated a "tax on tax". The Brazilian tax authorities filed an appeal seeking clarification of certain matters, including the amount of ICMS to which taxpayers would be entitled in order to reduce their indirect tax base (i.e. the gross rate or the net rate.)

In light of the BSC's decision, in November 2017, the Company filed suit consistent with the BSC decision to require that ICMS be excluded from the PIS/COFINS calculation and received a favorable preliminary decision that was confirmed by the BSC in September 2018. This preliminary ruling granted the Company the right to prospectively exclude ICMS amounts from the PIS/COFINS calculation, but left open the issue of whether the Company could recover the gross or net amount of ICMS amounts paid on PIS/COFINS for the period from November 2011 to December 2018.

In early January 2020, the Company was informed that a favorable decision was reached, confirming that the Company was entitled to recover the ICMS overpayments on PIS/COFINS for the period from November 2011 to December 2018, plus interest on that amount. The ruling did not, however, settle the question of whether the Company is eligible to recover based on the gross or the net amount of ICMS amounts paid on PIS/COFINS. A final ruling on the gross versus net amount issued is expected to be rendered in mid-2020.

Based on currently available information, the Company recognized \$8.0 million as a recovery in the fourth quarter of 2019 as a component of Selling and administrative expenses. Additional amounts may be recorded in 2020 upon completion of the final claim and subject to the satisfactory outcome of the final ruling on the use of the gross method of calculation.

Other

The Company determines estimates of reasonably possible losses or ranges of reasonably possible losses in excess of related accrued liabilities, if any, when it has determined that either a loss is reasonably possible or a loss in excess of accrued amounts is reasonably possible and the amount of losses or range of losses is determinable. For all third party contingencies (including labor, contract, technology, tax, product-related claims and business litigation), the Company currently estimates that the aggregate range of reasonably possible losses in excess of any accrued liabilities is \$0 to approximately \$10 million. The estimates included in this amount are based on the Company's analysis of currently available information and, as new information is obtained, these estimates may change. Due to the inherent subjectivity of the assessments and the unpredictability of outcomes of legal proceedings, any amounts accrued or included in this aggregate amount may not represent the ultimate loss to the Company from the matters in question. Thus, the Company's exposure and ultimate losses may be higher or lower, and possibly significantly so, than the amounts accrued or the range disclosed above.

NOTE 21. REDEEMABLE NONCONTROLLING INTERESTS

Through certain subsidiaries of Frutarom, there are noncontrolling interests that carry redemption features. The noncontrolling interest holders have the right, over a stipulated period of time, to sell their respective interests to Frutarom, and Frutarom has the option to purchase these interests (subject to the same timing). These options carry identical price and conditions of exercise, and will be settled in accordance with the multiple of the average EBITDA of consecutive quarters to be achieved during the period ending prior to the exercise date.

The following table sets forth the details of the Company's redeemable noncontrolling interests:

<i>(DOLLARS IN THOUSANDS)</i>	Redeemable Noncontrolling Interests	
Balance at December 31, 2017	\$	—
Acquired through acquisitions during 2018		97,510
Share of profit or loss attributable to noncontrolling interests		2,196
Redemption value mark-up for the current period		2,848
Sale of a subsidiary with redeemable noncontrolling interests		(14,673)
Exercises of redeemable noncontrolling interests		(6,075)
Balance at December 31, 2018	\$	81,806
Acquired through acquisitions during 2019		23,594
Impact of foreign exchange translation		(126)
Share of profit or loss attributable to redeemable noncontrolling interests		666
Redemption value adjustment for the current period		2,097
Measurement period adjustments		5,391
Dividends paid		(753)
Exercises of redeemable noncontrolling interests		(13,632)
Balance at December 31, 2019	\$	99,043

The decrease in redeemable noncontrolling interests in 2018 is primarily due to the exercise of options and the sale of a subsidiary during the fourth quarter of 2018.

The increase in redeemable noncontrolling interests in 2019 is primarily due to the interests acquired through acquisitions during the period, as discussed in Note 3.

NOTE 22. SUBSEQUENT EVENTS

Amendments to Existing Revolving Credit Facility Agreement

On January 17, 2020, the Company and certain of its subsidiaries entered into an amendment to its Credit Facility to facilitate the N&B transaction and the related guarantee or assumption by the Company of indebtedness to be incurred by N&B, in connection with the Company's pending transaction with N&B by, among other things, providing that after the closing date of the transaction, the Company's maximum permitted ratio of Net Debt to Consolidated EBITDA shall be 4.50 to 1.0, stepping down to 3.50 to 1.0 over time (with a step-up if the Company consummates certain qualified acquisitions).

Amendments to Existing Term Loan Agreement

On January 17, 2020, the Company and certain of its subsidiaries entered into an amendment to its Term Loan to facilitate the N&B transaction and the related guarantee or assumption by the Company of indebtedness to be incurred by N&B, in connection with the Company's pending transaction with N&B by, among other things, providing that after the closing date of the transaction, the Company's maximum permitted ratio of Net Debt to Consolidated EBITDA shall be 4.50 to 1.0, stepping down to 3.50 to 1.0 over time (with a step-up if the Company consummates certain qualified acquisitions).

(a)(3) EXHIBITS

Exhibit Number	Description
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|-----|--|
| 2.1 | <u>Agreement and Plan of Merger, dated May 7, 2018, by and among the Registrant, Frutarom Industries Ltd. and Icon Newco Ltd., incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on May 9, 2018.</u> |
| 2.2 | <u>Amendment No. 1 to Agreement and Plan of Merger, dated August 25, 2018, by and among International Flavors & Fragrances, Inc., Frutarom Industries Ltd. and Icon Newco Ltd. incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on August 27, 2018.</u> |
| 2.3 | <u>Agreement and Plan of Merger, dated December 15, 2019, by and among DuPont de Nemours Inc., Nutrition & Biosciences, Inc., International Flavors & Fragrances Inc. and Neptune Merger Sub I Inc., incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on December 18, 2019.</u> |
| 2.4 | <u>Separation and Distribution Agreement, dated as of December 15, 2019, by and among DuPont de Nemours Inc., Nutrition & Biosciences, Inc. and International Flavors & Fragrances Inc., incorporated by reference to Exhibit 2.2 to the Registrant's Current Report on Form 8-K filed on December 18, 2019.</u> |
| 3.1 | <u>Restated Certificate of Incorporation of the Registrant, incorporated by reference to Exhibit 10(g) to the Registrant's Quarterly Report on Form 10-Q filed on August 12, 2002.</u> |
| 3.2 | <u>Bylaws of International Flavors & Fragrances Inc., effective as of October 29, 2019, incorporated by reference to Exhibit 3(ii) to the Registrant's Current Report on Form 8-K filed on October 30, 2019.</u> |
| 4.1 | <u>Indenture, dated as of April 4, 2013, between the Registrant and U.S. Bank National Association, as Trustee (including the form of Notes), incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on April 4, 2013.</u> |
| 4.2 | <u>Indenture, dated as of March 2, 2016, between the Registrant and U.S. Bank National Association, as Trustee (including the form of Debt Security), incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-3 (Registration No. 333-209889) filed on March 2, 2016.</u> |
| 4.3 | <u>First Supplemental Indenture, dated as of March 14, 2016, between the Registrant and U.S. Bank National Association, as Trustee (including the form of Notes), incorporated by reference to Exhibit 4.7 to the Registrant's Current Report on Form 8-K filed on March 14, 2016.</u> |
| 4.4 | <u>Second Supplemental Indenture, dated as of May 18, 2017, between the Registrant and U.S. Bank National Association, as Trustee (including the form of Notes), incorporated by reference to Exhibit 4.7 to the Registrant's Current Report on Form 8-K filed on May 18, 2017.</u> |
| 4.5 | <u>Third Supplemental Indenture, dated as of September 17, 2018, between International Flavors & Fragrances Inc. and U.S. Bank National Association, as trustee, incorporated by reference to Exhibit 4.5 to the Registrant's Current Report on Form 8-K filed on September 17, 2018.</u> |
| 4.6 | <u>Form of Amortizing Note, incorporated by reference to Exhibit 4.6 to the Registrant's Current Report on Form 8-K filed on September 17, 2018.</u> |
| 4.7 | <u>Purchase Contract Agreement, dated September 17, 2018, between International Flavors & Fragrances Inc. and U.S. Bank National Association, as purchase contract agent, as attorney-in-fact for holders of the purchase contracts referred to therein and as trustee under the indenture referred to therein, incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on September 17, 2018.</u> |
| 4.8 | <u>Form of Unit, incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed on September 17, 2018.</u> |

Exhibit Number	Description
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| 4.9 | Form of Purchase Contract, incorporated by reference to Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed on September 17, 2018. |
| 4.10 | Fourth Supplemental Indenture, dated as of September 25, 2018, between International Flavors & Fragrances Inc. and U.S. Bank National Association, as trustee, incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed on September 25, 2018. |
| 4.11 | Form of Global Note for the 2021 Notes, incorporated by reference to Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed on September 25, 2018. |
| 4.12 | Form of Global Note for the 2026 Notes, incorporated by reference to Exhibit 4.4 to the Registrant's Current Report on Form 8-K filed on September 25, 2018. |
| 4.13 | Fifth Supplemental Indenture, dated as of September 26, 2018, between International Flavors & Fragrances Inc. and U.S. Bank National Association, as trustee, incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed on September 26, 2018. |
| 4.14 | Form of Global Note for the 2020 Notes, incorporated by reference to Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed on September 26, 2018. |
| 4.15 | Form of Global Note for the 2028 Notes, incorporated by reference to Exhibit 4.4 to the Registrant's Current Report on Form 8-K filed on September 26, 2018. |
| 4.16 | Form of Global Notes for the 2048 Notes, incorporated by reference to Exhibit 4.5 to the Registrant's Current Report on Form 8-K filed on September 26, 2018. |
| 4.17 | Description of Securities |
| *10.1 | Letter Agreement, dated as of May 26, 2014, between the Registrant and Andreas Fibig, incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on May 28, 2014. |
| *10.2 | Supplemental Retirement Plan, incorporated by reference to Exhibit 10.5 to the Registrant's Annual Report on Form 10-K filed on February 27, 2008. |
| *10.3 | 2010 Stock Award and Incentive Plan, as amended and restated as of May 6, 2015, incorporated by reference to Exhibit 10.8 to the Registrant's Quarterly Report on Form 10-Q filed on May 12, 2015. |
| *10.4 | Form of U.S. Stock Settled Appreciation Rights Agreement under the 2010 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.29 to the Registrant's Annual Report on Form 10-K filed on February 28, 2012. |
| *10.5 | Form of Restricted Stock Units Agreement - Non-Employee Director under the 2010 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.32 to the Registrant's Annual Report on Form 10-K filed on February 28, 2012. |
| *10.6 | Form of Long-Term Incentive Plan Award Agreement under the 2010 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.30 to the Registrant's Annual Report on Form 10-K filed on February 25, 2014. |
| *10.7 | Form of Restricted Stock Units Award Agreement under the 2010 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed on May 6, 2014. |
| *10.8 | Form of Equity Choice Program Award Agreement under the 2010 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed on May 6, 2014. |
| *10.9 | 2015 Stock Award and Incentive Plan, as amended and restated February 7, 2017, incorporated by reference to Exhibit 10.13 to the Registrant's Annual Report on Form 10-K filed on February 28, 2017. |
| *10.10 | Form of Annual Incentive Plan Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed on May 12, 2015. |
| *10.11 | Form of Long-Term Incentive Plan Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed on May 12, 2015. |
| *10.12 | Form of Equity Choice Program Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q filed on May 12, 2015. |
| *10.13 | Form of Restricted Stock Units Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q filed on May 12, 2015. |

**Exhibit
Number Description**

*10.14	Form of Non-Employee Director Restricted Stock Units Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q filed on May 12, 2015.
*10.15	Form of Equity Choice Program Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed on November 9, 2015.
*10.16	Form of Long-Term Incentive Plan Award Agreement under the 2015 Stock Award and Incentive Plan, incorporated by reference to Exhibit 10.25 to the Registrant's Annual Report on Form 10-K filed on March 1, 2016.
*10.17	Amended and Restated Executive Severance Policy, as amended through and including November 1, 2017, incorporated by reference to Exhibit 10.17 to the Registrant's Annual Report on Form 10-K filed on February 27, 2018.
*10.18	Form of Director/Officer Indemnification Agreement, incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on July 28, 2008.
*10.19	Form of Executive Death Benefit Program - Plan Agreement, incorporated by reference to Exhibit 10.27 to the Registrant's Annual Report on Form 10-K filed on February 28, 2012.
*10.20	Deferred Compensation Plan, as amended and restated December 12, 2011, incorporated by reference to Exhibit 10.28 to the Registrant's Annual Report on Form 10-K filed on February 28, 2012.
*10.21(i)	Credit Agreement, dated as of November 9, 2011, amended and restated as of December 2, 2016, among the Registrant, International Flavors & Fragrances (Luxembourg) S.à.r.l., International Flavors & Fragrances (Nederland) Holding B.V., International Flavors & Fragrances I.F.F. (Nederland) B.V. and International Flavors & Fragrances (Greater Asia) PTE. Ltd., as borrowers, the banks, financial institutions and other institutional lenders party thereto, and Citibank, N.A. as administrative agent, incorporated by reference to Exhibit 10.28 to the Registrant's Current Report on Form 8-K filed on December 5, 2016.
10.21(ii)	Amendment No. 1 to Credit Agreement, dated as of May 21, 2018, among the Registrant, International Flavors & Fragrances (Nederland) Holding B.V., International Flavors & Fragrances I.F.F. (Nederland) B.V. and International Flavors & Fragrances (Greater Asia) PTE. Ltd., as borrowers, the lenders signatory thereto and Citibank, N.A. as administrative agent, incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on May 24, 2018.
10.21(iii)	Amendment No. 2 to Credit Agreement, dated as of June 6, 2018, among the Registrant, International Flavors & Fragrances (Nederland) Holding B.V., International Flavors & Fragrances I.F.F. (Nederland) B.V. and International Flavors & Fragrances (Greater Asia) PTE. Ltd., as borrowers, the lenders signatory thereto and Citibank, N.A. as administrative agent, incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on June 8, 2018.
10.21(iv)	Amendment No. 3 to Credit Agreement, dated as of July 13, 2018, among the Registrant, International Flavors & Fragrances (Nederland) Holding B.V., International Flavors & Fragrances I.F.F. (Nederland) B.V. and International Flavors & Fragrances (Greater Asia) PTE. Ltd., as borrowers, the lenders signatory thereto and Citibank, N.A. as administrative agent, incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed on August 7, 2018.
10.22(i)	Term Loan Credit Agreement, dated as of June 6, 2018, among the Registrant, as borrower, the lenders signatory thereto and Morgan Stanley Senior Funding, Inc. as administrative agent, incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on June 8, 2018.
10.22(ii)	Amendment No 1 to Term Loan Credit Agreement, dated as of July 13, 2018, among the Registrant, as borrower, the lenders signatory thereto and Morgan Stanley Senior Funding, Inc. as administrative agent, incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q filed on August 7, 2018.
10.23	Employee Matters Agreement, dated as of December 15, 2019, by and among DuPont de Nemours Inc., Nutrition & Biosciences, Inc. and International Flavors & Fragrances Inc, incorporated by reference to the Registrant's Current Report on Form 8-K filed on December 18, 2019.
21	List of Principal Subsidiaries.
23	Consent of PricewaterhouseCoopers LLP.
31.1	Certification of Andreas Fibig pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Rustom Jilla pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32	Certification of Andreas Fibig and Rustom Jilla pursuant to 18 U.S.C. Section 1350 as adopted pursuant to the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extensions Schema

**Exhibit
Number Description**

101.CAL XBRL Taxonomy Extension Calculation Linkbase

101.DEF XBRL Taxonomy Extension Definition Linkbase

101.LAB XBRL Taxonomy Extension Label Linkbase

101.PRE XBRL Taxonomy Extension Presentation Linkbase

* Management contract or compensatory plan or arrangement

ITEM 16. FORM 10-K SUMMARY.

None.

SIGNATURES

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

INTERNATIONAL FLAVORS & FRAGRANCES INC.

By: _____ /s/ Rustom Jilla
Name: **Rustom Jilla**
Title: *Executive Vice President and Chief Financial Officer*

Dated: March 3, 2020

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Andreas Fibig</u> Andreas Fibig	Chairman of the Board, Chief Executive Officer and Director (Principal Executive Officer)	March 3, 2020
<u>/s/ Rustom Jilla</u> Rustom Jilla	Executive Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	March 3, 2020
<u>/s/ Marcello V. Bottoli</u> Marcello V. Bottoli	Director	March 3, 2020
<u>/s/ Linda B. Buck</u> Linda B. Buck	Director	March 3, 2020
<u>/s/ Michael Ducker</u> Michael Ducker	Director	March 3, 2020
<u>/s/ David R. Epstein</u> David R. Epstein	Director	March 3, 2020
<u>/s/ Roger W. Ferguson, Jr.</u> Roger W. Ferguson, Jr.	Director	March 3, 2020
<u>/s/ John F. Ferraro</u> John F. Ferraro	Director	March 3, 2020
<u>/s/ Christina Gold</u> Christina Gold	Director	March 3, 2020
<u>/s/ Katherine M. Hudson</u> Katherine M. Hudson	Director	March 3, 2020
<u>/s/ Dale F. Morrison</u> Dale F. Morrison	Director	March 3, 2020
<u>/s/ Li-Huei Tsai</u> Li-Huei Tsai	Director	March 3, 2020
<u>/s/ Stephen Williamson</u> Stephen Williamson	Director	March 3, 2020

INTERNATIONAL FLAVORS & FRAGRANCES INC. AND SUBSIDIARIES
SCHEDULE II — VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

(IN THOUSANDS)

For the Year Ended December 31, 2019

	Balance at beginning of period	Additions charged to costs and expenses	Acquisitions	Accounts written off	Translation adjustments	Balance at end of period
Allowance for doubtful accounts	\$ 9,173	\$ 1,262	\$ —	\$ (2,024)	\$ (180)	\$ 8,231
Valuation allowance on credit and operating loss carryforwards and other net deferred tax assets	200,280	5,659	—	—	(2,174)	203,765

For the Year Ended December 31, 2018

	Balance at beginning of period	Additions (deductions) charged to costs and expenses	Acquisitions	Accounts written off	Translation adjustments	Balance at end of period
Allowance for doubtful accounts	\$ 13,392	\$ 1,286	\$ —	\$ (4,642)	\$ (863)	\$ 9,173
Valuation allowance on credit and operating loss carryforwards and other net deferred tax assets	207,483	(1,821) ⁽¹⁾	3,887	—	(9,269)	200,280

For the Year Ended December 31, 2017

	Balance at beginning of period	Additions charged to costs and expenses	Acquisitions	Accounts written off	Translation adjustments	Balance at end of period
Allowance for doubtful accounts	\$ 9,995	\$ 3,798	\$ —	\$ (1,496)	\$ 1,095	\$ 13,392
Valuation allowance on credit and operating loss carryforwards and other net deferred tax assets	152,752	35,646 ⁽²⁾	—	—	19,085	207,483

(1) The 2018 amount includes an adjustment to the 2017 foreign net operating loss carryforwards in the amount of \$5.9 million.

(2) The 2017 amount includes an adjustment to the 2016 foreign net operating loss carryforwards in the amount of \$58.8 million.

**DESCRIPTION OF REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

As of December 31, 2019, International Flavors and Fragrances Inc. (the "Company") had five classes of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"): (1) common stock; (2) 6.00% Tangible Equity Units; (3) 0.500% Senior Notes due 2021; (4) 1.800% Senior Notes due 2026; and (5) 1.750% Senior Notes due 2024.

DESCRIPTION OF COMMON STOCK

The following description of our common stock is a summary and does not purport to be complete. This description is subject to and qualified in its entirety by reference to our Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation"), and our By-Laws, as amended (the "By-Laws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.17 is a part. We encourage a holder to read our Certificate of Incorporation, our By-Laws and the applicable provisions of the New York Business Corporation Law for additional information.

Authorized Shares

As of December 31, 2019, our authorized common stock consists of Five Hundred Million (500,000,000) shares, each with a par value of \$0.125 per share ("common stock").

Dividends

Holders of Common Stock are entitled to receive such dividends as the Company's Board of Directors (the "Board") may from time to time declare out of funds legally available therefore under the laws of the State of New York, in amounts that the Board may determine in its sole discretion. Covenants and other restrictions in loan agreements entered into by the Company from time to time may restrict our ability to pay dividends without lender consent.

Voting Rights

Holders of common stock are entitled to one vote per share on the election of directors and all matters submitted to a vote of stockholders. There is no cumulative voting. With respect to the election of directors, at each meeting of stockholders for the election of directors at which a quorum is present, except in the case of a contested election, the vote required for election of a director will be the affirmative vote of a majority of the votes cast in favor of or against the election of a nominee. In a contested election, the persons receiving a plurality of the votes cast at the meeting will be elected as directors. An election will be deemed to be contested if, as of the record date for the stockholder meeting in question, there are more nominees for election than positions on the Board to be filled by election at the meeting. For all other matters put to a vote of stockholders, assuming a quorum is present, the vote of the holders of a majority of the votes cast will decide any question brought before such meeting, except as otherwise expressly provided by the Certificate of Incorporation, By-laws or the laws of the State of New York.

Rights Upon Liquidation, Dissolution or Winding Up

On liquidation, dissolution or winding up, holders of common stock are entitled to share ratably in the assets available for distribution to holders of common stock, as determined by applicable law.

Preemptive Rights

Except as may otherwise be determined by a two-thirds vote of the Board, holders of common stock may be entitled to purchase any new or additional issue of any equity or voting shares of the Company or of any security convertible into equity or voting shares, if and to the extent required by the laws of the State of New York and

applicable provisions of our Certificate of Incorporation. Such rights do not apply to shares issued upon the exercise of stock options.

Other Provisions

Under the Certificate of Incorporation, except as otherwise provided by the laws of the State of New York, the Board is authorized, without the approval of the stockholders, to authorize and issue obligations of the Company and to determine the associated rights as to redeemability, convertibility or otherwise in its sole discretion.

Certain Statutory Provisions

Certain provisions of the law of the State of New York may place restrictions on Company stockholders based on their ownership of a substantial amount of the Company's outstanding shares of common stock or otherwise have the effect of delaying or preventing a change in control of the Company. As a general matter, New York law places restrictions on the ability of the Company to engage in a business combination with a beneficial holder of twenty percent or more of the Company's outstanding common stock unless the approval of the Board or disinterested shareholders is timely obtained or other specified conditions are met.

Listing

The common stock is currently listed on the New York Stock Exchange ("NYSE"), the Tel Aviv Stock Exchange and on Euronext Paris under the symbol "IFF."

Transfer Agent and Registrar

The transfer agent and registrar for the common stock is American Stock Transfer & Trust Company.

DESCRIPTION OF THE 6.000% TANGIBLE EQUITY UNITS

The following is a description of our 6.000% Tangible Equity Units (“Units”), including the terms of the purchase contracts and the amortizing notes, and does not purport to be complete. This description is subject to and qualified in its entirety by reference to (i) the indenture, dated as of March 2, 2016, between us, as issuer, and U.S. Bank National Association, as trustee, and a related supplemental indenture, dated as of September 17, 2018, under which the amortizing notes were issued (together, the “Indenture”), and (ii) the purchase contract agreement (the “purchase contract agreement”) under the Indenture, dated as of September 17, 2018, between us and U.S. Bank National Association, as purchase contract agent, as attorney-in-fact for holders of purchase contracts and as trustee for the Indenture, pursuant to which the purchase contracts and Units were issued, which are incorporated by reference as exhibits to the Annual Report on Form 10-K of which this Exhibit 4.17 is a part.

There were initially issued 16,500,000, each with a stated amount of \$50.

Components of the Units

Each Unit offered is comprised of:

- a prepaid stock purchase contract, pursuant to which we will deliver to the holder, not later than September 15, 2021 (subject to postponement in certain limited circumstances, the “mandatory settlement date”), unless earlier redeemed or settled, a number of shares of our common stock, par value \$0.125 per share (the “common stock”) per purchase contract equal to the settlement rate described below under “Description of the Purchase Contracts—Delivery of Common Stock;” and
- a senior amortizing note with an initial principal amount of \$8.45436 that pays equal quarterly installments of \$0.75000 per amortizing note (except for the December 15, 2018 installment payment, which was \$0.73333 per amortizing note), which cash payment in the aggregate will be equivalent to 6.00% per year with respect to the \$50 stated amount per Unit.

Unless previously settled at the holder’s option, settled at our option, or redeemed at our option, holders will receive not more than 0.3839 shares and not less than 0.3134 shares of our common stock on the mandatory settlement date, based upon the applicable “settlement rate” (as defined below), which is subject to adjustment as described herein, and the “applicable market value” (as defined below) of our common stock, as described below under “Description of the Purchase Contracts—Delivery of Common Stock.”

Each amortizing note had an initial principal amount of \$8.45436. On each of March 15, June 15, September 15 and December 15, which commenced on December 15, 2018, we will pay equal cash installments of \$0.75000 on each amortizing note (except for the December 15, 2018 installment payment, which was \$0.73333 per amortizing note). Each installment constitutes a payment of interest (at a rate of 3.79% per annum) and a partial repayment of principal on the amortizing note, allocated as set forth on the amortization schedule set forth under “Description of the Amortizing Notes—Amortization Schedule.”

The stated amount of each Unit must be allocated between the amortizing note and the purchase contract based upon their relative fair market values. We have determined that the fair market value of each amortizing note is \$8.45436 and the fair market value of each purchase contract is \$41.54564, as set forth in the purchase contract agreement. Each holder agrees to such allocation and this position will be binding upon each holder (but not on the Internal Revenue Service).

Separating and Recreating Units

Upon the conditions and under the circumstances described below, a holder has the right to separate a Unit into its component parts, and a holder of a separate purchase contract and a separate amortizing note has the right to combine the two components to recreate a Unit.

Separating Units

On any business day during the period beginning on, and including, September 18, 2018, but excluding, the second scheduled trading day immediately preceding September 15, 2021 or, if earlier, the second scheduled trading day immediately preceding any “early mandatory settlement date” (as defined under “Description of the Purchase Contracts”) and also excluding the business day immediately preceding any installment payment date (*provided*, the right to separate the Units shall resume after such business day), a holder has the right to separate a holder’s Unit into its constituent purchase contract and amortizing note (which we refer to as a “separate purchase contract” and a “separate amortizing note,” respectively, and which will thereafter trade under their respective CUSIP numbers), in which case that Unit will cease to exist. If a holder beneficially owns a Unit, a holder may separate it into its component purchase contract and component amortizing note by delivering written instructions to the broker or other direct or indirect participant through which a holder hold an interest in a holder’s Unit (a “participant”) to notify The Depository Trust Company (“DTC”) through DTC’s Deposit/Withdrawal at Custodian (“DWAC”) system of a holder’s desire to separate the Unit. Holders who elect to separate a Unit into its constituent purchase contract and amortizing note shall be responsible for any fees or expenses payable in connection with such separation.

“Business day” means any day other than a Saturday, Sunday or any day on which banking institutions in New York, New York are authorized or obligated by applicable law or executive order to close or be closed.

Separate purchase contracts and separate amortizing notes will be transferable independently from each other.

Recreating Units

On any business day during the period beginning on, and including, September 18, 2018, but excluding, the second scheduled trading day immediately preceding September 15, 2021 or, if earlier, the second scheduled trading day immediately preceding any early mandatory settlement date and also excluding the business day immediately preceding any installment payment date (*provided*, the right to recreate the Units shall resume after such business day), a holder may recreate a Unit from its separate purchase contract and separate amortizing note. If a holder beneficially owns a separate purchase contract and a separate amortizing note, it may recreate a Unit by delivering written instruction to the holder’s participant to notify DTC through DTC’s DWAC system of a holder’s desire to recreate the Unit. Holders who elect to recreate Units shall be responsible for any fees or expenses payable in connection with such recreation.

Global Securities

Each Unit, purchase contract and amortizing note is represented by global securities registered in the name of a nominee of DTC. Holders are not entitled to receive definitive physical certificates for Units, purchase contracts or amortizing notes, except under the limited circumstances. Beneficial interests in a Unit and, after separation, the separate purchase contract and separate amortizing note will be represented through book-entry accounts of, and transfers will be effected through, direct or indirect participants in DTC.

Deemed Actions by Holders by Acceptance

Each holder of Units or separate purchase contracts, by acceptance of such securities, is deemed to have:

- irrevocably authorized and directed the purchase contract agent to execute, deliver and perform on its behalf the purchase contract agreement, and appointed the purchase contract agent as its attorney-in-fact for any and all such purposes;

- in the case of a purchase contract that is a component of a Unit, or that is evidenced by a separate purchase contract, irrevocably authorized and directed the purchase contract agent to execute, deliver and hold on its behalf the separate purchase contract or the component purchase contract evidencing such purchase contract, and appointed the purchase contract agent as its attorney-in-fact for any and all such purposes;
- consented to, and agreed to be bound by, the terms and provisions of the purchase contract agreement; and
- in the case of a holder of a Unit, agreed, for all purposes, including U.S. federal income tax purposes, to treat:
 - o a Unit as an investment unit composed of two separate instruments, in accordance with its form;
 - o the amortizing notes as indebtedness of ours; and
 - o the allocation of the \$50 stated amount per Unit between the purchase contract and the amortizing note so that such holder's initial tax basis in each purchase contract will be \$41.54564 and such holder's initial tax basis in each amortizing note will be \$8.45436.

Listing of Units

The Units are listed on the NYSE under the symbol "IFFT."

Description of the Purchase Contracts

Delivery of Common Stock

Unless previously redeemed or settled early at a holder's or our option, for each purchase contract we will deliver to the holder on September 15, 2021 (subject to postponement in certain limited circumstances described below, the "mandatory settlement date") a number of shares of our common stock. The number of shares of our common stock issuable upon settlement of each purchase contract (the "settlement rate") will be determined as follows:

- if the applicable market value of our common stock is greater than the threshold appreciation price, then a holder will receive 0.3134 shares of common stock for each purchase contract (the "minimum settlement rate");
- if the applicable market value of our common stock is greater than or equal to the reference price but less than or equal to the threshold appreciation price, then a holder will receive a number of shares of common stock for each purchase contract equal to the Unit stated amount of \$50, *divided by* the applicable market value; and
- if the applicable market value of our common stock is less than the reference price, then a holder will receive 0.3839 shares of common stock for each purchase contract (the "maximum settlement rate").

The maximum settlement rate, minimum settlement rate and reference price are each subject to adjustment as described under "Adjustments to the Fixed Settlement Rates" below. Each of the minimum settlement rate and the maximum settlement rate is referred to as a "fixed settlement rate."

The reference price is equal to \$50 *divided by* the maximum settlement rate and is approximately equal to \$130.25.

The threshold appreciation price is equal to \$50 *divided by* the minimum settlement rate. The threshold appreciation price, which is initially approximately \$159.54, represents an appreciation of approximately 22.5% over the reference price.

If, on the mandatory settlement date, the applicable market value is greater than the threshold appreciation price, we would be obligated to deliver 0.3134 shares of common stock for each purchase contract. As a result, if the applicable market value exceeds the threshold appreciation price, a holder will receive only a portion of the appreciation in the market value of the shares of our common stock a holder would have received had such holder purchased shares of common stock with \$50 at the public offering price in the concurrent common stock offering.

If, on the mandatory settlement date, the applicable market value is less than or equal to the threshold appreciation price but greater than or equal to the reference price of approximately \$130.25, we would be obligated to deliver a number of shares of our common stock on the mandatory settlement date equal to \$50, *divided by* the applicable market value. As a result, we would retain all appreciation in the market value of our common stock underlying each purchase contract between the reference price and the threshold appreciation price.

If, on the mandatory settlement date, the applicable market value is less than the reference price of approximately \$130.25, we would be obligated to deliver upon settlement of the purchase contract 0.3839 shares of common stock for each purchase contract, regardless of the market price of our common stock. As a result, the holder would realize a loss on the decline in market value of the common stock below the reference price.

Because the applicable market value of the common stock is determined over the 20 consecutive “trading days” (as defined below) beginning on, and including, the 21st scheduled trading day immediately preceding September 15, 2021, the number of shares of common stock delivered for each purchase contract may be greater than or less than the number that would have been delivered based on the closing price (or daily VWAP) of the common stock on the last trading day in such 20 consecutive trading day period. In addition, a holder will bear the risk of fluctuations in the market price of the shares of common stock deliverable upon settlement of the purchase contracts between the end of such 20 consecutive trading day period and the date such shares are delivered.

The term “applicable market value” means the arithmetic average of the daily VWAPs of our common stock on each of the 20 consecutive trading days beginning on, and including, the 21st scheduled trading day immediately preceding September 15, 2021.

The “daily VWAP” of our common stock on any trading day means such price per share as displayed under the heading “Bloomberg VWAP” on Bloomberg (or any successor service) page IFF.US <Equity> AQR (or its equivalent successor if such page is not available) in respect of the period from the scheduled open to 4:00 p.m., New York City time, on such trading day; or, if such price is not available, the market value per share of our common stock on such trading day as determined, using a volume-weighted average method, by a nationally recognized independent investment banking firm retained by us for this purpose. The “daily VWAP” will be determined without regard to after-hours trading or any other trading outside of the regular trading session trading hours.

“Trading day” for purposes of determining any consideration due at settlement of a purchase contract means a day on which (i) there is no “market disruption event” (as defined below) and (ii) trading in our common stock (or other security for which a daily VWAP must be determined) generally occurs on the NYSE or, if our common stock (or such other security) is not then listed on the NYSE, on the principal other U.S. national or regional securities exchange on which our common stock (or such other security) is then listed or, if our common stock (or such other security) is not then listed on a U.S. national or regional securities exchange, on the principal other market on which our common stock (or such other security) is then traded. If our common stock (or such other security) is not so listed or traded, “trading day” means a “business day.”

“Scheduled trading day” means a day that is scheduled to be a trading day on the NYSE or, if our common stock is not then listed on the NYSE, on the principal other U.S. national or regional securities exchange on which our common stock is then listed or, if our common stock is not then listed on a U.S. national or regional securities

exchange, on the principal other market on which our common stock is then traded. If our common stock is not so listed or admitted for trading, “scheduled trading day” means a “business day.”

“Market disruption event” means (i) a failure by the primary U.S. national or regional securities exchange or market on which our common stock is listed or admitted for trading to open for trading during its regular trading session or (ii) the occurrence or existence prior to 1:00 p.m., New York City time, on any scheduled trading day for our common stock for more than one half-hour period in the aggregate during regular trading hours of any suspension or limitation imposed on trading (by reason of movements in price exceeding limits permitted by the relevant stock exchange or otherwise) in our common stock or in any options contracts or futures contracts relating to our common stock.

On the mandatory settlement date, our common stock will be issued and delivered to a holder or its designee, upon (i) surrender of certificates representing the purchase contracts, if such purchase contracts are held in certificated form, and (ii) payment by a holder of any transfer or similar taxes payable in connection with the issuance of our common stock to any person other than a holder. As long as the purchase contracts are evidenced by one or more global purchase contract certificates deposited with DTC, procedures for settlement will be governed by DTC’s applicable procedures.

If one or more of the 20 consecutive scheduled trading days beginning on, and including, the 21st scheduled trading day immediately preceding September 15, 2021 is not a trading day, the mandatory settlement date will be postponed until the second scheduled trading day immediately following the last trading day of the 20 consecutive trading day period during which the applicable market value is determined.

Prior to 5:00 p.m., New York City time, on the last trading day of the 20 consecutive trading day period during which the applicable market value is determined, the shares of common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of our common stock by virtue of holding such purchase contract. The person in whose name any shares of our common stock shall be issuable upon settlement of the purchase contract on the mandatory settlement date will be treated as the holder of record of such shares as of 5:00 p.m., New York City time, on the last trading day of the 20 consecutive trading day period during which the applicable market value is determined.

We will pay any documentary, stamp or similar issue or transfer tax due on the issue of any shares of our common stock upon settlement or redemption of the purchase contracts, unless the tax is due because the holder requests any shares to be issued in a name other than the holder’s name, in which case the holder will pay that tax.

Early Settlement

Prior to 5:00 p.m., New York City time, on the second scheduled trading day immediately preceding September 15, 2021, each holder of Units or a holder of a separate purchase contract, may elect to settle its purchase contracts early, in whole or in part, and receive a number of shares of common stock per purchase contract equal to the “early settlement rate.” The early settlement rate is equal to the minimum settlement rate on the early settlement date, subject to adjustment as described below under “—Adjustments to the Fixed Settlement Rates,” unless a holder elects to settle its purchase contracts early in connection with a fundamental change, in which case a holder will receive upon settlement of its purchase contracts a number of shares of our common stock based on the “fundamental change early settlement rate” as described under “—Early Settlement Upon a Fundamental Change.”

A holder’s right to receive common stock upon early settlement of a purchase contract is subject to (i) delivery of a written and signed notice of election (an “early settlement notice”) to the purchase contract agent electing early settlement of such purchase contract, (ii) if such purchase contract or the Unit that includes such purchase contract is held in certificated form, surrendering the certificates representing the purchase contract, or if held in global form, surrendering in accordance with DTC’s applicable procedures and (iii) payment by a holder of any transfer or similar taxes payable in connection with the issuance of our common stock to any person other than a holder.

Upon surrender of the purchase contract or the related Unit and payment of any applicable transfer or similar taxes due because of any issue of such shares in a name of a person other than the holder, a holder will receive the applicable number of shares of common stock (and any cash payable for fractional shares) due upon early settlement on the second business day following the “early settlement date” (as defined below).

Prior to 5:00 p.m., New York City time, on the early settlement date, the shares of common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of our common stock by virtue of holding such purchase contract. The person in whose name any shares of our common stock shall be issuable upon such early settlement of the purchase contract will be treated as the holder of record of such shares as of 5:00 p.m., New York City time, on the relevant early settlement date.

Upon early settlement at the holder’s election of the purchase contract component of a Unit, the amortizing note underlying such Unit will remain outstanding and beneficially owned by or registered in the name of, as the case may be, the holder who elected to settle the related purchase contract early and will no longer constitute a part of the Unit.

Early Settlement Upon a Fundamental Change

If a “fundamental change” occurs and a holder elects to settle a holder’s purchase contracts early in connection with such fundamental change in accordance with the procedures described under “—Early Settlement” above, a holder will receive per purchase contract a number of shares of our common stock or cash, securities or other property, as applicable, equal to the “fundamental change early settlement rate,” as described below. An early settlement will be deemed for these purposes to be “in connection with” such fundamental change if a holder delivers its early settlement notice to the purchase contract agent, and otherwise satisfy the requirements for effecting early settlement of a holder’s purchase contracts, during the period beginning on, and including, the effective date of the fundamental change and ending at 5:00 p.m., New York City time, on the 35th business day thereafter (or, if earlier, the second scheduled trading day immediately preceding September 15, 2021) (the “fundamental change early settlement period”). We refer to this right as the “fundamental change early settlement right.”

If a holder complies with the requirements for effecting early settlement of its purchase contracts in connection with a fundamental change prior to 5:00 p.m., New York City time, on any business day during the fundamental change early settlement period, then that day will be considered the “fundamental change early settlement date.” If a holder complies with such requirements at or after 5:00 p.m., New York City time, on any business day during the fundamental change early settlement period or at any time on a day during the fundamental change early settlement period that is not a business day, then the next succeeding business day will be considered the “fundamental change early settlement date.”

We will provide the purchase contract agent, the trustee and the holders of Units and separate purchase contracts with a notice of a fundamental change within five business days after its effective date and issue a press release announcing such effective date. The notice will also set forth, among other things, (i) the applicable fundamental change early settlement rate, (ii) if not common stock, the kind and amount of cash, securities and other property receivable by the holder upon settlement and (iii) the deadline by which each holder’s fundamental change early settlement right must be exercised.

A “fundamental change” will be deemed to have occurred upon the occurrence of any of the following:

- any “person” or “group” within the meaning of Section 13(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), other than us, any of our subsidiaries and any of our and their employee benefit plans, files a Schedule TO or any other schedule, form or report under the Exchange Act disclosing that such person or group has become the direct or indirect “beneficial owner” (as defined in Rule 13d-3 under the Exchange Act) of more than 50% of the outstanding shares of our common stock;

- the consummation of (A) any recapitalization, reclassification or change of our common stock (other than changes resulting from a subdivision or combination) as a result of which our common stock would be converted into, or exchanged for, stock, other securities, other property or assets; (B) any share exchange, consolidation or merger of us pursuant to which our common stock will be converted into cash, securities or other property or assets; or (C) any sale, lease or other transfer in one transaction or a series of transactions of all or substantially all of the consolidated assets of us and our subsidiaries, taken as a whole, to any person other than one of our wholly owned subsidiaries; or
- our common stock (or other common stock receivable upon settlement of a holder’s purchase contracts, if applicable) ceases to be listed or quoted on any of the NYSE, the NASDAQ Global Select Market or the NASDAQ Global Market (or any of their respective successors).

A transaction or transactions described in the first two bullets above will not constitute a fundamental change, however, if at least 90% of the consideration received or to be received by our common stockholders (excluding cash payments for fractional shares) in connection with such transaction or transactions consists of shares of common stock that are listed on any of the NYSE, the NASDAQ Global Select Market or the NASDAQ Global Market (or any of their respective successors), or will be so listed when issued or exchanged in connection with such transaction or transactions, and as a result of such transaction or transactions such consideration becomes the consideration receivable upon settlement of a holder’s purchase contracts, if applicable, excluding cash payments for fractional shares.

If any transaction in which our common stock is replaced by the securities of another entity occurs, following completion of any related fundamental change early settlement period (or, in the case of a transaction that would have been a fundamental change but for the immediately preceding paragraph, following the effective date of such transaction), references to us in the definition of “fundamental change” above shall instead be references to such other entity.

The “fundamental change early settlement rate” will be determined by us by reference to the table below, based on the date on which the fundamental change occurs or becomes effective (the “effective date”) and the “stock price” in the fundamental change, which will be:

- in the case of a fundamental change described in the second bullet of the definition of “fundamental change” in which all holders of shares of our common stock receive only cash in the fundamental change, the stock price will be the cash amount paid per share of our common stock; and
- in all other cases, the stock price will be the arithmetic average of the daily VWAPs of our common stock over the five consecutive trading day period ending on the trading day immediately preceding the effective date.

The stock prices set forth in the column headings of the table below will be adjusted as of any date on which the fixed settlement rates are adjusted. The adjusted stock prices will equal the stock prices applicable immediately prior to such adjustment, multiplied by a fraction, the numerator of which is the maximum settlement rate immediately prior to the adjustment giving rise to the stock price adjustment and the denominator of which is the maximum settlement rate as so adjusted. The fundamental change early settlement rates per purchase contract in the table below will be adjusted in the same manner and at the same time as the fixed settlement rates as set forth under “Description of the Purchase Contracts—Adjustments to the Fixed Settlement Rates.”

The following table sets forth the fundamental change early settlement rate per purchase contract for each stock price and effective date set forth below:

Stock Price

Effective Date	\$50.00	\$100.00	\$130.25	\$135.00	\$140.00	\$159.54	\$175.00	\$207.40	\$225.00	\$275.00	\$300.00
September 17, 2018	0.3223	0.3321	0.3217	0.3197	0.3175	0.3096	0.3052	0.3012	0.3007	0.3016	0.3023
September 15, 2019	0.3421	0.3482	0.3337	0.3306	0.3273	0.3153	0.3088	0.3045	0.3044	0.3054	0.3059
September 15, 2020	0.3626	0.3671	0.3493	0.3445	0.3392	0.3202	0.3119	0.3084	0.3086	0.3093	0.3096
September 15, 2021	0.3839	0.3839	0.3839	0.3704	0.3571	0.3134	0.3134	0.3134	0.3134	0.3134	0.3134

The exact stock prices and effective dates may not be set forth in the table above, in which case:

- if the applicable stock price is between two stock prices in the table or the applicable effective date is between two effective dates in the table, the fundamental change early settlement rate will be determined by straight line interpolation between the fundamental change early settlement rates set forth for the higher and lower stock prices and the earlier and later effective dates, as applicable, based on a 365- or 366-day year, as applicable;
- if the applicable stock price is greater than \$300.00 per share (subject to adjustment in the same manner and at the same time as the stock prices set forth in the column headings of the table above), then the fundamental change early settlement rate will be the minimum settlement rate; or
- if the applicable stock price is less than \$50.00 per share (subject to adjustment in the same manner and at the same time as the stock prices set forth in the column headings of the table above, the “minimum stock price”), the fundamental change early settlement rate will be determined as if the stock price equaled the minimum stock price, and using straight line interpolation, as described in the first bullet of this paragraph, if the effective date is between two effective dates in the table.

The maximum number of shares of our common stock deliverable under a purchase contract is 0.3839, subject to adjustment in the same manner and at the same time as the fixed settlement rates as set forth under “Description of the Purchase Contracts—Adjustments to the Fixed Settlement Rates.”

Our obligation to settle the purchase contracts at the fundamental change early settlement rate could be considered a penalty, in which case the enforceability thereof would be subject to general principles of reasonableness of economic remedies.

We will deliver the shares of our common stock, securities, cash or other property payable as a result of a holder’s exercise of the fundamental change early settlement right on the second business day following the fundamental change early settlement date. Prior to 5:00 p.m., New York City time, on the fundamental change early settlement date, the shares of common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of our common stock by virtue of holding such purchase contract. The person in whose name any shares of our common stock or other securities, if applicable, shall be issuable following exercise of a holder’s fundamental change early settlement right will be treated as the holder of record of such shares or other securities, if applicable, as of 5:00 p.m., New York City time, on the fundamental change early settlement date.

Upon early settlement of the purchase contract component of a Unit at the holder’s election upon a fundamental change, the amortizing note underlying such Unit will remain outstanding and will be beneficially owned by or registered in the name of, as the case may be, the holder who elected to settle the related purchase contract early upon the fundamental change and will no longer constitute a part of the Unit.

If a holder does not elect to exercise its fundamental change early settlement right, a holder’s purchase contracts will remain outstanding and will be subject to normal settlement on any subsequent early settlement date, any subsequent fundamental change early settlement date or the mandatory settlement date, as the case may be.

Early Mandatory Settlement at Our Election

We have the right to settle the purchase contracts on or after June 18, 2019, in whole but not in part, on a date fixed by us as described below at the “early mandatory settlement rate” described below. We refer to this right as our “early mandatory settlement right.”

The “early mandatory settlement rate” will be the maximum settlement rate as of the notice date (as defined below), unless the closing price of our common stock for 20 or more trading days in a period of 30 consecutive trading days ending on the trading day immediately preceding the notice date (including the last trading day of such period) exceeds 130% of the threshold appreciation price in effect on each such trading day, in which case the “early mandatory settlement rate” will be the minimum settlement rate as of the notice date.

In the event we elect to settle the purchase contracts early, holders of the amortizing notes (whether as components of Units or separate amortizing notes) will have the right to require us to repurchase some or all of their amortizing notes, as described under “Description of the Amortizing Notes—Repurchase of Amortizing Notes at the Option of the Holder.” If we exercise our early mandatory settlement right and the holder of any Unit does not require us to repurchase the amortizing note that is a component of such Unit, such amortizing note will remain outstanding and will be beneficially owned by or registered in the name of, as the case may be, such holder. If we exercise our early mandatory settlement right and the holder of any Unit requires us to repurchase the amortizing note that is a component of such Unit but the related repurchase date falls after the early mandatory settlement date, such amortizing note will remain outstanding (pending such repurchase date) and will be beneficially owned by or registered in the name of, as the case may be, such holder.

If we elect to exercise our early mandatory settlement right, we will provide the purchase contract agent and the holders of Units, separate purchase contracts and separate amortizing notes with a notice of our election (the “early mandatory settlement notice”) and issue a press release announcing our election. We will deliver the shares of our common stock and any cash payable for fractional shares to a holder on the early mandatory settlement date. Prior to 5:00 p.m., New York City time, on the notice date, the shares of common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of our common stock by virtue of holding such purchase contract. The person in whose name any shares of our common stock shall be issuable following exercise of our early mandatory settlement right will be treated as the holder of record of such shares as of 5:00 p.m., New York City time, on the notice date.

Adjustments to the Fixed Settlement Rates

The fixed settlement rates will be adjusted as described below, except that we will not make any adjustments to the fixed settlement rates if holders of the purchase contracts participate (other than in the case of a share split or share combination or (y) a tender or exchange offer), at the same time and upon the same terms as holders of our common stock and solely as a result of holding the purchase contracts, in any of the transactions described below without having to settle their purchase contracts as if they held a number of shares of our common stock equal to the maximum settlement rate, *multiplied* by the number of purchase contracts held by such holders.

(a) If we issue common stock to all or substantially all of the holders of our common stock as a dividend or other distribution, then each fixed settlement rate in effect immediately prior to 5:00 p.m., New York City time, on the “record date” (as defined below) for such dividend or distribution will be *multiplied* by a fraction:

- the numerator of which is equal to (i) the number of shares of our common stock outstanding immediately prior to 5:00 p.m., New York City time, on such record date; *plus* (ii) the total number of shares of our common stock constituting such dividend or other distribution; and
- the denominator of which is the number of shares of our common stock outstanding immediately prior to 5:00 p.m., New York City time, on such record date.

Any adjustment made pursuant to this clause (a) will become effective immediately after 5:00 p.m., New York City time, on the record date for such dividend or distribution. If any dividend or distribution described in this clause (a) is declared but not so paid or made, each fixed settlement rate will be readjusted, effective as of the date our board of directors (or a committee thereof) publicly announces its decision not to make such dividend or distribution, to such fixed settlement rate that would be in effect if such dividend or distribution had not been declared. For the purposes of this clause (a), the number of shares of common stock outstanding immediately prior to 5:00 p.m., New York City time, on the record date for such dividend or distribution will not include shares held in treasury but will include any shares issuable in respect of any scrip certificates issued in lieu of fractions of shares of common stock. We will not pay any such dividend or make any such distribution on shares of common stock held in treasury.

(b) If we issue to all or substantially all holders of our common stock rights, options or warrants (other than rights, options or warrants issued pursuant to a dividend reinvestment plan, shareholder rights plan, share purchase plan or other similar plans) entitling them, for a period of up to 45 calendar days from the date of issuance of such rights, options or warrants, to subscribe for or purchase our shares of common stock at less than the “current market price” (as defined below) of our common stock, then each fixed settlement rate in effect immediately prior to 5:00 p.m., New York City time, on the record date for such issuance will be *multiplied* by a fraction:

- the numerator of which is equal to (i) the number of shares of common stock outstanding immediately prior to 5:00 p.m., New York City time, on such record date, *plus* (ii) the total number of shares of our common stock issuable pursuant to such rights, options or warrants, and
- the denominator of which is equal to (i) the number of shares of common stock outstanding immediately prior to 5:00 p.m., New York City time, on such record date, *plus* (ii) the number of shares of common stock equal to the quotient of the aggregate price payable to exercise such rights, options or warrants divided by the current market price per share of our common stock.

Any adjustment made pursuant to this clause (b) will be made successively whenever any such rights, options or warrants are issued and will become effective immediately after 5:00 p.m., New York City time, on the record date for such issuance. In the event that such rights, options or warrants described in this clause (b) are not so issued, each fixed settlement rate will be readjusted, effective as of the date our board of directors (or a committee thereof) publicly announces its decision not to issue such rights, options or warrants, to such fixed settlement rate that would then be in effect if such issuance had not been declared. To the extent that such rights, options or warrants are not exercised prior to their expiration or shares of our common stock are otherwise not delivered pursuant to such rights, options or warrants upon the exercise of such rights, options or warrants, each fixed settlement rate will be readjusted, effective as of the date of such expiration or the date it is determined such shares will not be delivered, as the case may be, to such fixed settlement rate that would then be in effect had the adjustment made upon the issuance of such rights, options or warrants been made on the basis of the delivery of only the number of shares of our common stock actually delivered.

In determining whether any rights, options or warrants entitle the holders thereof to subscribe for or purchase shares of our common stock at less than the current market price per share of our common stock, and in determining the aggregate price payable to exercise such rights, options or warrants, there will be taken into account any consideration received by us for such rights, options or warrants and any amount payable on exercise or conversion thereof (the value of such consideration, if other than cash, to be determined by our board of directors, or a committee thereof).

For the purposes of this clause (b), the number of shares of common stock at the time outstanding will not include shares held in treasury but will include any shares issuable in respect of any scrip certificates issued in lieu of fractions of shares of common stock. We will not issue any such rights, options or warrants in respect of shares of common stock held in treasury.

(c) If we subdivide or combine our common stock, then each fixed settlement rate in effect immediately prior to 9:00 a.m., New York City time, on the effective date of such subdivision or combination will be multiplied by a fraction:

- the numerator of which is the number of shares of our common stock that would be outstanding immediately after, and solely as a result of, such subdivision or combination, and
- the denominator of which is the number of shares of our common stock outstanding immediately prior to 9:00 a.m., New York City time, on such effective date (before giving effect to such subdivision or combination).

Any adjustment made pursuant to this clause (c) will become effective immediately after 9:00 a.m., New York City time, on the effective date of such subdivision or combination.

(d) If we distribute to all or substantially all holders of our common stock evidences of our indebtedness, shares of our capital stock (other than our common stock), securities, cash or other assets, excluding:

- any dividend or distribution as to which an adjustment was effected pursuant to clause (a) above;
- any rights, options or warrants as to which an adjustment was effected pursuant to clause (b) above;
- any dividend or distribution described in clause (e) below; and
- any spin-off (as defined below) to which the provisions set forth below in this clause (d) shall apply,

then each fixed settlement rate in effect immediately prior to 5:00 p.m., New York City time, on the record date for such distribution will be *multiplied by* a fraction:

- the numerator of which is the current market price per share of our common stock, and
- the denominator of which is equal to (i) the current market price per share of our common stock, *minus* (ii) the fair market value (as determined by our board of directors, or a committee thereof) on such record date of the portion of the evidences of indebtedness, shares of capital stock, securities, cash or other assets so distributed applicable to one share of our common stock.

Any adjustment made pursuant to the portion of this clause (d) above will become effective immediately after 5:00 p.m., New York City time, on the record date for such distribution. In the event that such distribution is not so made, each fixed settlement rate will be readjusted, effective as of the date our board of directors (or a committee thereof) publicly announces its decision not to make such distribution, to such fixed settlement rate that would then be in effect if such distribution had not been declared. We will not make any such distribution on shares of common stock held in treasury.

In the event that we make a distribution to all or substantially all holders of our common stock consisting of capital stock of, or similar equity interests in, or relating to, a subsidiary or other business unit of ours that, upon issuance, will be traded on a U.S. national securities exchange (herein referred to as a “spin-off”), each fixed settlement rate in effect immediately prior to 5:00 p.m., New York City time, on the record date for such distribution will instead be *multiplied by* a fraction:

- the numerator of which is equal to (i) the current market price per share of our common stock, plus (ii) the average of the closing prices (as defined below, as if references to “common stock” therein were references to such capital stock or similar equity interest so distributed) of the capital stock or similar equity interests so distributed applicable to one share of our common stock over the 10 consecutive trading day period commencing on, and including, the effective date of the spin-off (the “valuation period”), and

- the denominator of which is the current market price per share of our common stock.

Any adjustment made pursuant to this portion of clause (d) will become effective immediately after 5:00 p.m., New York City time, on the last trading day of the valuation period; *provided* that if any date for determining the number of shares of our common stock issuable to a holder occurs during the valuation period, references in the preceding paragraph to 10 trading days will be deemed to be replaced with such lesser number of trading days as have elapsed from, and including, the effective date of such spin-off to, and including, such determination date for purposes of determining the fixed settlement rates. In the event that such distribution described in this clause (d) is not so made, each fixed settlement rate will be readjusted, effective as of the date our board of directors (or a committee thereof) publicly announces its decision not to pay such distribution, to such fixed settlement rate that would then be in effect if such distribution had not been declared. We will not make any such distribution on shares of common stock held in treasury.

(e) If we make a distribution consisting exclusively of cash to all or substantially all holders of our common stock (excluding (x) any cash that is distributed in a reorganization event (as described below) in exchange for shares of our common stock, (y) any regular quarterly dividend that does not exceed \$0.73 per share of common stock (the “dividend threshold amount”), and (z) any dividend or distribution in connection with our liquidation, dissolution or winding up), then each fixed settlement rate in effect immediately prior to 5:00 p.m., New York City time, on the record date fixed for such distribution will be *multiplied* by a fraction:

- the numerator of which is the current market price per share of our common stock, and
- the denominator of which is equal to (i) the current market price per share of our common stock, *minus* (ii) the amount of such distribution per share of our common stock in excess of the dividend threshold amount; provided that if the distribution is not a regular quarterly cash dividend, then the dividend threshold amount will be deemed to be zero.

The dividend threshold amount is subject to adjustment on an inversely proportional basis whenever the fixed settlement rates are adjusted (by multiplying the dividend threshold amount by a fraction, the numerator of which will be the minimum settlement rate in effect immediately prior to the adjustment and the denominator of which will be the minimum settlement rate as adjusted), but no adjustment will be made to the dividend threshold amount for any adjustment made to the fixed settlement rates pursuant to this clause (e).

Any adjustment made pursuant to this clause (e) will become effective immediately after 5:00 p.m., New York City time, on the record date for such distribution. In the event that any distribution described in this clause (e) is not so made, each fixed settlement rate will be readjusted, effective as of the date our board of directors (or a committee thereof) publicly announces its decision not to pay such distribution, to such fixed settlement rate which would then be in effect if such distribution had not been declared. We will not make any such distribution on shares of common stock held in treasury.

(f) If we or any of our subsidiaries successfully complete a tender or exchange offer pursuant to a Schedule TO or registration statement on Form S-4 for our common stock (excluding any securities convertible or exchangeable for our common stock and other than an odd-lot tender offer), where the cash and the value of any other consideration included in the payment per share of our common stock validly tendered or exchanged exceeds the current market price per share of our common stock, then each fixed settlement rate in effect immediately prior to 5:00 p.m., New York City time, on the 10th trading day immediately following, and including, the trading day immediately following the last date on which tenders or exchanges may be made pursuant to such tender or exchange offer (the “expiration date”) will be *multiplied* by a fraction:

- the numerator of which will be equal to the sum of:
 - o the aggregate value of all cash and the fair market value (as determined by our board of directors, or a committee thereof) on the expiration date of any other consideration paid or payable for shares of common stock validly tendered or exchanged and not withdrawn as of the expiration date; and

o the product of:

§ the current market price per share of our common stock; and

§ the number of shares of our common stock outstanding immediately after the last time tenders or exchanges may be made pursuant to such tender or exchange offer (the “expiration time”), after giving effect to the purchase of all shares accepted for purchase or exchange in such tender or exchange offer, and

• the denominator of which will be equal to the product of:

o the current market price per share of our common stock; and

o the number of shares of our common stock outstanding immediately prior to the expiration time on the expiration date, prior to giving effect to the purchase of any shares accepted for purchase or exchange in such tender or exchange offer.

Any adjustment made pursuant to this clause (f) will become effective immediately after 5:00 p.m., New York City time, on the 10th trading day immediately following the expiration date; *provided* that if any date for determining the number of shares of our common stock issuable to a holder occurs during the 10 trading days immediately following, and including, the trading day next succeeding the expiration date, references in the preceding paragraph to 10 trading days will be deemed to be replaced with such lesser number of trading days as have elapsed from, and including, the trading day immediately following such expiration date to, and including, such determination date for purposes of determining the fixed settlement rates. In the event that we are, or one of our subsidiaries is, obligated to purchase shares of our common stock pursuant to any such tender or exchange offer, but we are, or such subsidiary is, permanently prevented by applicable law from effecting any such purchases, or all such purchases are rescinded, then each fixed settlement rate will be readjusted to be such fixed settlement rate that would then be in effect if such tender or exchange offer had not been made.

Except with respect to a spin-off, in cases where the fair market value of evidences of our indebtedness, our capital stock, securities, cash or other assets as to which clauses (d) or (e) above apply, applicable to one share of common stock, distributed to stockholders equals or exceeds the applicable current market price per share of our common stock, rather than being entitled to an adjustment in each fixed settlement rate, holders of the purchase contracts will be entitled to receive (without settling such holders’ purchase contract) on the date on which such evidences of indebtedness, capital stock, securities, cash or other assets are distributed to holders of our common stock, for each purchase contract, the amount of such indebtedness, capital stock, securities, cash or other assets that such holder would have received had such holder owned a number of shares of our common stock equal to the maximum settlement rate on the record date for such distribution.

To the extent that we have a rights plan in effect with respect to our common stock on any date for determining the number of shares of our common stock issuable to a holder, a holder will receive, in addition to our common stock, the rights under the rights plan, unless, prior to such determination date, the rights have separated from our common stock, in which case each fixed settlement rate will be adjusted at the time of separation as if we made a distribution to all holders of our common stock as described in clause (d) above, subject to readjustment in the event of the expiration, termination or redemption of such rights.

The “current market price” per share of our common stock on any day means:

- with respect to clause (b) above, the average of the closing prices of our common stock over the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement of the issuance requiring such computation;
- with respect to clauses (d) (in the event of an adjustment not relating to a spin-off) and (e) above, the average of the closing prices of our common stock over the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the earlier of the ex-date and the record date for the issuance or distribution requiring such computation;

- with respect to clause (d) above (in the event of an adjustment relating to a spin-off only), the average of the closing prices of our common stock over the 10 consecutive trading day period commencing on, and including, the effective date of such spin-off; and
- with respect to clause (f) above, the average of the closing prices of our common stock over the 10 consecutive trading day period commencing on, and including, the trading day immediately following the expiration date for the tender or exchange offer.

The “closing price” per share of our common stock on any day means the closing sale price per share (or if no closing sale price is reported, the average of the bid and ask prices or, if more than one in either case, the average of the average bid and the average ask prices) on that date as reported in composite transactions for the NYSE or, if our common stock is not then listed on the NYSE, the principal other U.S. national or regional securities exchange on which our common stock is traded. If our common stock is not listed for trading on a U.S. national or regional securities exchange on the relevant date, the “closing price” will be the last quoted bid price for our common stock on the principal other market on which our common stock is then traded. If our common stock is not so quoted, the “closing price” will be the average of the mid-point of the last bid and ask prices for our common stock on the relevant date from each of at least three nationally recognized independent investment banking firms selected by us for this purpose.

“Trading day” for purposes of this “—Adjustments to the Fixed Settlement Rates” section means a day on which (i) trading in our common stock (or other security for which a closing sale price must be determined) generally occurs on the NYSE or, if our common stock (or such other security) is not then listed on the NYSE, on the principal other U.S. national or regional securities exchange on which our common stock (or such other security) is then listed or, if our common stock (or such other security) is not then listed on a U.S. national or regional securities exchange, on the principal other market on which our common stock (or such other security) is then traded, and (ii) a closing price for our common stock (or closing sale price for such other security) is available on such securities exchange or market. If our common stock (or such other security) is not so listed or traded, “trading day” means a “business day.”

The term “ex-date,” when used with respect to any issuance or distribution, means the first date on which shares of our common stock trade on the applicable exchange or in the applicable market, regular way, without the right to receive such issuance or distribution in question from us or, if applicable, from the seller of our common stock on such exchange or market (in the form of due bills or otherwise) as determined by such exchange or market.

The term “record date” means, when used with respect to any dividend, distribution or other transaction or event in which the holders of our common stock (or other applicable security) have the right to receive any cash, securities or other property or in which our common stock (or other applicable security) is exchanged for or converted into any combination of cash, securities or other property, the date fixed for determination of holders of our common stock (or other applicable security) entitled to receive such cash, securities or other property (whether such date is fixed by our board of directors or a committee thereof, or by statute, contract or otherwise).

Recapitalizations, Reclassifications and Changes of our Common Stock

In the event of:

- any consolidation or merger of us with or into another person (other than a merger or consolidation in which we are the continuing or surviving corporation and in which the shares of our common stock outstanding immediately prior to the merger or consolidation are not exchanged for cash, securities or other property of us or another person);
- any sale, transfer, lease or conveyance to another person of all or substantially all of our property and assets;
- any reclassification of our common stock into securities, including securities other than our common stock; or

- any statutory exchange of our securities with another person (other than in connection with a merger or acquisition);

in each case, as a result of which our common stock would be converted into, or exchanged for, securities, cash or other property (each, a “reorganization event”), each purchase contract outstanding immediately prior to such reorganization event will, without the consent of the holders of the purchase contracts, become a contract to purchase the kind of securities, cash and/or other property that a holder of common stock would have been entitled to receive immediately prior to such reorganization event (such securities, cash and other property, the “exchange property”) and, prior to or at the effective time of such reorganization event, we or the successor or purchasing person, as the case may be, shall execute with the purchase contract agent and the trustee a supplemental agreement pursuant to the purchase contract agreement and the purchase contracts to provide for such change in the right to settle the purchase contracts. For purposes of the foregoing, the type and amount of exchange property in the case of any reorganization event that causes our common stock to be converted into, or exchanged for, the right to receive more than a single type of consideration (determined based in part upon any form of shareholder election) will be deemed to be the weighted average of the types and amounts of consideration actually received by the holders of our common stock. The number of units of exchange property we will deliver for each purchase contract settled or redeemed (if we elect not to deliver solely cash in respect of such redemption) following the effective date of such reorganization event will be equal to the number of shares of our common stock we would otherwise be required to deliver as determined by the fixed settlement rates then in effect on the applicable determination date, or such other settlement rates or redemption rates as provided herein (without interest thereon and without any right to dividends or distributions thereon which have a record date prior to 5:00 p.m., New York City time, on the determination date). Each fixed settlement rate will be determined using the applicable market value of a unit of exchange property that a holder of one share of our common stock would have received in such reorganization event, and such value will be determined (i) in the case of any publicly traded securities that comprise all or part of the exchange property, based on the daily VWAP of such securities, (ii) in the case of any cash that comprises all or part of the exchange property, based on the amount of such cash; and (iii) in the case of any other property that comprises all or part of the exchange property, based on the value of such property, as determined by a nationally recognized independent investment banking firm retained by us for this purpose. In addition, if the exchange property in respect of any reorganization event includes, in whole or in part, securities of another entity, we shall amend the terms of the purchase contract agreement and the purchase contracts, without the consent of holders thereof, to (x) provide for anti-dilution and other adjustments that shall be as nearly equivalent as practicable, as determined by the officer executing such amendment, to the adjustments described above under the heading “—Adjustments to the Fixed Settlement Rates” and (y) otherwise modify the terms of the purchase contract agreement and the purchase contracts to reflect the substitution of the applicable exchange property for our common stock (or other exchange property then underlying the purchase contracts). In establishing such anti-dilution and other adjustments referenced in the immediately preceding sentence, such officer shall act in a commercially reasonable manner and in good faith.

In connection with any adjustment to the fixed settlement rates described above, we will also adjust the dividend threshold amount based on the number of shares of common stock comprising the exchange property and (if applicable) the value of any non-stock consideration comprising the exchange property. If the exchange property is comprised solely of non-stock consideration, the dividend threshold amount will be zero.

In addition, we may make such increases in each fixed settlement rate as we determine to be in our best interests or we deem advisable in order to avoid or diminish any income tax to holders of our common stock resulting from any dividend or distribution of shares of our common stock (or issuance of rights, options or warrants to acquire shares of our common stock) or from any event treated as such for income tax purposes or for any other reason. We may only make such a discretionary adjustment if we make the same proportionate adjustment to each fixed settlement rate.

If the settlement rates are adjusted as a result of a distribution that is taxable to our common stockholders, such as a cash dividend, a holder generally will be deemed to have received for U.S. federal income tax purposes a taxable dividend without the receipt of any cash. In addition, a failure to adjust (or to adjust adequately) the settlement rates after an event that increases a holder’s proportionate interest in us could be treated as a deemed taxable dividend to a holder. A holder may also be deemed to have received a taxable dividend in the event we make

certain other adjustments to the settlement rates of the purchase contracts. For example, if a fundamental change occurs prior to the maturity date, under some circumstances, we will increase the settlement rate for purchase contracts settled in connection with the fundamental change. Such increase may also be treated as a distribution subject to U.S. federal income tax as a dividend. If a holder are a “non-U.S. holder,” a deemed dividend may be subject to U.S. federal withholding tax (currently at a 30% rate, or such lower rate as may be specified by an applicable income tax treaty), which may be withheld from shares of common stock or sales proceeds subsequently paid or credited to a holder. It is possible that U.S. withholding tax on deemed dividends would be withheld from any interest or other amounts paid to a non-U.S. holder.

Adjustments to each fixed settlement rate will be calculated to the nearest 1/10,000th of a share. No adjustment in the fixed settlement rates will be required unless the adjustment would require an increase or decrease of at least one percent. If any adjustment is not required to be made because it would not change the fixed settlement rates by at least one percent, then the adjustment will be carried forward and taken into account in any subsequent adjustment; provided that, on any date for determining the number of shares of our common stock issuable to a holder, adjustments to the fixed settlement rates will be made with respect to any such adjustment carried forward and which has not been taken into account before such determination date.

The fixed settlement rates will only be adjusted as set forth above and will not be adjusted:

- upon the issuance of any common stock pursuant to any present or future plan providing for the reinvestment of dividends or interest payable on our securities and the investment of additional optional amounts in common stock under any plan;
- upon the issuance of any common stock or rights, options or warrants to purchase those shares pursuant to any present or future employee, director or consultant benefit plan or program of or assumed by us or any of our subsidiaries;
- upon the repurchase of any shares of our common stock pursuant to an open market share repurchase program or other buy-back transaction that is not a tender offer or exchange offer of the nature described in clause (f) above;
- for the sale or issuance of shares of our common stock, or securities convertible into or exercisable for shares of our common stock, for cash, including at a price per share less than the fair market value thereof or otherwise or in an acquisition, except as described in one of clauses (a) through (f) above;
- for a third party tender offer;
- upon the issuance of any common stock pursuant to any option, warrant, right or exercisable, exchangeable or convertible security outstanding as of the date the Units were first issued; or
- solely for a change in, or elimination of, the par value of our common stock.

Whenever the fixed settlement rates are adjusted, we will deliver to the purchase contract agent a certificate setting forth in reasonable detail the method by which the adjustment to each fixed settlement rate was determined and setting forth each revised fixed settlement rate. In addition, we will, within five business days of any event requiring such adjustment, provide or cause to be provided written notice of the adjustment to the holders of the Units and separate purchase contracts and describe in reasonable detail the method by which each fixed settlement rate was adjusted.

Each adjustment to each fixed settlement rate will result in a corresponding adjustment to the early settlement rate and the early mandatory settlement rate. Whenever we are required to calculate the closing prices, the daily VWAPs or any other prices or amounts over a span of multiple days (including, without limitation, the applicable market value, the redemption market value, or the “stock price”), our board of directors (or a committee thereof) will make appropriate adjustments, if any, to each to account for any adjustment to the fixed settlement rates

if the related record date, ex-date, effective date or expiration date occurs during the period in which the closing prices, the daily VWAPs or such other prices or amounts are to be calculated.

Fractional Shares

No fractional shares of our common stock will be issued to holders upon settlement or redemption of the purchase contracts. In lieu of fractional shares otherwise issuable, holders will be entitled to receive an amount in cash equal to the fraction of a share of our common stock, calculated on an aggregate basis in respect of the purchase contracts being settled or redeemed (provided that, so long as the Units are in global form, we may elect to aggregate Units for purposes of these calculations on any basis permitted by the applicable procedures of DTC), *multiplied* by the daily VWAP of our common stock on the trading day immediately preceding the mandatory settlement date, early settlement date, fundamental change early settlement date, or early mandatory settlement date, as the case may be.

Consequences of Bankruptcy

Pursuant to the terms of the purchase contract agreement, the mandatory settlement date for each purchase contract, whether held separately or as part of a Unit, will automatically accelerate upon the occurrence of specified events of bankruptcy, insolvency or reorganization with respect to us. Pursuant to the terms of the purchase contract agreement, upon acceleration, holders will be entitled under the terms of the purchase contracts to receive a number of shares of our common stock per purchase contract equal to the maximum settlement rate in effect immediately prior to such acceleration (regardless of the market value of our common stock at that time). However, a bankruptcy court may prevent us from delivering our common stock in settlement of the accelerated purchase contracts. In such event, a holder would have a damage claim against us for the value of the common stock that we would have otherwise been required to deliver upon settlement of the purchase contracts. Any such damage claim that holders have against us following such acceleration will rank *pari passu* with the claims of holders of our common stock in the relevant bankruptcy proceeding. As such, to the extent we fail to deliver common stock to a holder upon such an acceleration, a holder will only be able to recover damages to the extent holders of our common stock receive any recovery.

Modification

The purchase contract agreement contains provisions permitting us, the purchase contract agent and the trustee to modify the purchase contract agreement or the purchase contracts without the consent of the holders of purchase contracts (whether held separately or as a component of Units) for any of the following purposes:

- to evidence the succession of another person to us, and the assumption by any such successor of the covenants and obligations of ours in the purchase contract agreement and the units and separate purchase contracts, if any;
- to add to the covenants for the benefit of holders of purchase contracts or to surrender any of our rights or powers under the agreement;
- to evidence and provide for the acceptance of appointment of a successor purchase contract agent;
- upon the occurrence of a reorganization event, solely (i) to provide that each purchase contract will become a contract to purchase exchange property and (ii) to effect the related changes to the terms of the purchase contracts, in each case, as required by the applicable provisions of the purchase contract agreement;
- to conform the provisions of the purchase contract agreement to the “Description of the Purchase Contracts” and “Description of the Units” sections in the preliminary prospectus supplement, as supplemented by the related pricing term sheet;
- to cure any ambiguity or manifest error, to correct or supplement any provisions that may be inconsistent; and

- to make any other provisions with respect to such matters or questions, so long as such action does not adversely affect the interest of the holders.

The purchase contract agreement contains provisions permitting us, the purchase contract agent and the trustee, with the consent of the holders of not less than a majority of the purchase contracts at the time outstanding, to modify the terms of the purchase contracts or the purchase contract agreement. However, no such modification may, without the consent of the holder of each outstanding purchase contract affected by the modification,

- reduce the number of shares of common stock deliverable upon settlement of the purchase contract (except to the extent expressly provided in the anti-dilution adjustments);
- change the mandatory settlement date, or adversely modify the right to settle purchase contracts early or the fundamental change early settlement right; or
- reduce the above-stated percentage of outstanding purchase contracts the consent of the holders of which is required for the modification or amendment of the provisions of the purchase contracts or the purchase contract agreement.

In executing any supplement, modification or amendment to the purchase contract agreement, the purchase contract agent and trustee shall be provided an officers' certificate and an opinion of counsel stating that the execution of such supplemental agreement is authorized or permitted by the purchase contract agreement and does not violate the purchase contract agreement, and that any and all conditions precedent to the execution and delivery of such supplemental agreement have been satisfied.

Consolidation, Merger, Sale or Conveyance

Under the purchase contract agreement, we are permitted to consolidate with or merge with or into another company. We are also permitted to sell, assign, transfer, lease or convey all or substantially all of our assets to another company. However, if we take any of these actions, we must meet the following conditions:

- the successor entity to such consolidation or merger, or the entity which acquires all or substantially all of our assets, shall expressly assume all of our obligations under the purchase contracts and the purchase contract agreement via a supplement to the purchase contract agreement;
- the successor entity to such consolidation or merger, or the entity which acquires all or substantially all of our assets, shall be a corporation organized and existing under the laws of the United States or any state thereof or the District of Columbia; and
- immediately after the merger, consolidation, sale, assignment, transfer, lease or conveyance, no default has occurred and is continuing under the purchase contracts or the purchase contract agreement.

Description of the Amortizing Notes

For each amortizing note, the final installment payment date will be September 15, 2021. We may not redeem the amortizing notes, and no sinking fund is provided for the amortizing notes.

There are no covenants or provisions in the Indenture that would afford the holders of the amortizing notes protection in the event of a highly leveraged transaction, reorganization, restructuring, merger or similar transaction involving us that may adversely affect such holders.

Ranking

The amortizing notes are direct, unsecured and unsubordinated obligations and rank equally with all of our existing and future other unsecured and unsubordinated indebtedness. The amortizing notes are effectively subordinated to any of our existing and future secured indebtedness, to the extent of the assets securing such indebtedness, and are effectively subordinated to all liabilities of our subsidiaries, including trade payables.

Installment Payments

Each amortizing note has an initial principal amount of \$8.45436. On each March 15, June 15, September 15 and December 15, commencing on December 15, 2018 (each, an “installment payment date”), we will pay, in cash, equal quarterly installments of \$0.75000 on each amortizing note (except for the December 15, 2018 installment payment, which was \$0.73333 per amortizing note). Each installment will constitute a payment of interest (at a rate of 3.79% per annum) and a partial repayment of principal on the amortizing note, allocated as set forth on the amortization schedule set forth below under “Amortization Schedule.” Installments will be paid to the person in whose name an amortizing note is registered as of 5:00 p.m., New York City time, on the business day immediately preceding the related installment payment date (each, a “regular record date”), subject to provisions allowing the establishment of a new record date in respect of any defaulted interest. If the amortizing notes do not remain in book-entry only form, then we will have the right to elect that each regular record date will be each March 1, June 1, September 1 and December 1 immediately preceding the relevant installment payment date by giving advance written notice to the trustee and the holders.

Each installment payment for any period will be computed on the basis of a 360-day year of twelve 30-day months. The installment payable for any period shorter or longer than a full installment payment period will be computed on the basis of the actual number of days elapsed per 30-day month. In the event that any date on which an installment is payable is not a business day, then payment of the installment on such date will be made on the next succeeding day that is a business day, and without any interest or other payment in respect of any such delay.

Amortization Schedule

The total installments of principal of and interest on the amortizing notes for each installment payment date are set forth below:

Scheduled Installment Payment Date	Amount of Principal	Amount of Interest
December 15, 2018	\$ 0.65497	\$ 0.07836
March 15, 2019	0.67606	0.07394
June 15, 2019	0.68247	0.06753
September 15, 2019	0.68894	0.06106
December 15, 2019	0.69547	0.05453
March 15, 2020	0.70206	0.04794
June 15, 2020	0.70872	0.04128
September 15, 2020	0.71544	0.03456
December 15, 2020	0.72222	0.02778
March 15, 2021	0.72907	0.02093
June 15, 2021	0.73598	0.01402
September 15, 2021	0.74296	0.00704

Repurchase of Amortizing Notes at the Option of the Holder

If we elect to exercise our early mandatory settlement right with respect to the purchase contracts, then holders of the amortizing notes (whether as components of Units or separate amortizing notes) will have the right (the “repurchase right”) to require us to repurchase some or all of their amortizing notes for cash at the repurchase

price per amortizing note to be repurchased on the repurchase date, as described below. Holders may not require us to repurchase a portion of an amortizing note. Holders will not have the right to require us to repurchase any or all of such holder's amortizing notes in connection with any early settlement of such holder's purchase contracts at the holder's option, as described above under "Description of the Purchase Contracts—Early Settlement" and "Description of the Purchase Contracts—Early Settlement Upon a Fundamental Change."

The "repurchase date" will be a date specified by us in the early mandatory settlement notice, which will be at least 20 but not more than 35 business days following the date of our early mandatory settlement notice as described under "Description of the Purchase Contracts—Early Settlement at Our Option" (and which may or may not fall on the early mandatory settlement date).

The "repurchase price" per amortizing note to be repurchased will be equal to the principal amount of such amortizing note as of the repurchase date, plus accrued and unpaid interest on such principal amount from, and including, the immediately preceding installment payment date to, but not including, the repurchase date, calculated at an annual rate of 3.79%; *provided* that, if the repurchase date falls after a regular record date for any installment payment and on or prior to the immediately succeeding installment payment date, the installment payment payable on such installment payment date will be paid on such installment payment date to the holder as of such regular record date and will not be included in the repurchase price per amortizing note.

To exercise repurchase rights, a holder must deliver, on or before 5:00 p.m., New York City time, on the business day immediately preceding the repurchase date, the amortizing notes to be repurchased (or the Units, if the early mandatory settlement date occurs on or after the repurchase date and a holder has not separated its Units into their constituent components), together with a duly completed written repurchase notice in the form entitled "Form of Repurchase Notice" on the reverse side of the amortizing notes (a "repurchase notice"), in each case, in accordance with appropriate DTC procedures, unless a holder holds certificated amortizing notes (or Units), in which case a holder must deliver the amortizing notes to be repurchased (or Units), duly endorsed for transfer, together with a repurchase notice, to the paying agent.

A holder may withdraw any repurchase notice (in whole or in part) by a written, irrevocable notice of withdrawal delivered (in the case of an amortizing note in global form, in accordance with the appropriate DTC procedures) on or before 5:00 p.m., New York City time, on the business day immediately preceding the repurchase date.

We will be required to repurchase the amortizing notes on the repurchase date. A holder will receive payment of the repurchase price on the later of (i) the repurchase date and (ii) the time of book-entry transfer or the delivery of the amortizing notes. If the trustee holds money sufficient to pay the repurchase price of the amortizing notes to be purchased on the repurchase date, then

- such amortizing notes will cease to be outstanding and interest will cease to accrue (whether or not book-entry transfer of the amortizing notes is made or whether or not the amortizing notes are delivered to the trustee); and
- all other rights of the holder will terminate (other than the right to receive the repurchase price and, if the repurchase date falls between a regular record date and the corresponding installment payment date, the related installment payment).

In connection with any repurchase offer pursuant to an early mandatory settlement notice, we will, if required, comply with the provisions of the tender offer rules under the Exchange Act that may then be applicable.

No amortizing notes may be repurchased at the option of holders if the principal amount thereof has been accelerated, and such acceleration has not been rescinded, on or prior to the repurchase date (except in the case of an acceleration resulting from a default by us of the payment of the repurchase price with respect to such amortizing notes).

Events of Default

The following are “Events of Default”:

- default in the payment of the repurchase price of any amortizing notes when the same shall become due and payable;
- default in the payment of any installment payment on any amortizing notes as and when the same shall become due and payable and continuance of such failure for a period of 30 days; or
- our failure to give notice of a fundamental change as described under “Description of the Purchase Contracts—Early Settlement Upon a Fundamental Change” when due and continuance of such failure for a period of five business days.

Discharge, Defeasance and Covenant Defeasance

Discharge. We may discharge some obligations to holders of the amortizing notes that either have become due and payable or will become due and payable within one year, or scheduled for redemption within one year, by irrevocably depositing with the trustee, in trust, funds in the applicable currency in an amount sufficient to pay the amortizing notes, including any premium and interest.

Full Defeasance. We can, under particular circumstances, effect a full defeasance of the holder’s amortizing notes. By this we mean we can legally release ourselves from any payment or other obligations on the amortizing notes if we put in place the following arrangements to repay the holder:

- We must deposit in trust for the holder’s benefit and the benefit of all other direct holders of the amortizing notes a combination of money and U.S. government or U.S. government agency notes or bonds that will generate enough cash to make interest, principal and any other payments on the amortizing notes on their due date.
- We must deliver to the trustee a legal opinion confirming that the holders of outstanding amortizing notes will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to U.S. federal income tax on the same amount and in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred, based on the fact that (i) the Company has received from, or there has been published by, the Internal Revenue Service a ruling (which ruling may be, but need not be, issued with respect to the Company) or (ii) since the date of the Indenture, there has been a change in the applicable U.S. federal income tax law.

If we did accomplish full defeasance, the holder would have to rely solely on the trust deposit for repayment on the amortizing notes. You could not look to us for repayment in the unlikely event of any shortfall. Conversely, the trust deposit would most likely be protected from claims of our lenders and other creditors if we ever become bankrupt or insolvent.

Covenant Defeasance. Under current federal tax law, we can make the same type of deposit described above and be released from some of the restrictive covenants in the amortizing notes. This is called “covenant defeasance.” In that event, the holder would lose the protection of those restrictive covenants but would gain the protection of having money and securities set aside in trust to repay the amortizing notes and the holder would be released from any subordination provisions. In order to achieve covenant defeasance, we must do the following:

- We must deposit in trust for the holder’s benefit and the benefit of all other direct holders of the amortizing notes a combination of money and U.S. government or U.S. government agency notes or bonds that will generate enough cash to make interest, principal and any other payments on the amortizing notes on their due date.

- We must deliver to the trustee a legal opinion confirming that under current federal income tax law we may make the above deposit without causing the holder to be taxed on the amortizing notes any differently than if we did not make the deposit and just repaid the amortizing notes ourselves.

If we accomplish covenant defeasance, certain covenants of the Indenture and the amortizing notes would no longer apply. If we accomplish covenant defeasance, the holder can still look to us for repayment of the amortizing notes if there were a shortfall in the trust deposit. If one of the remaining events of default occurs, for example, our bankruptcy, and the amortizing notes become immediately due and payable, there may be a shortfall. Depending on the event causing the default, the holder may not be able to obtain payment of the shortfall.

Limitations on Mergers, Consolidations and Sales of Assets

Under the Indenture, we are permitted to consolidate or merge with another company. We are also permitted to sell substantially all of our assets to another company, or to buy substantially all of the assets of another company. However, if we take any of these actions, we must meet the following conditions:

- the successor entity to such consolidation or merger, or the entity which acquires substantially all of our assets, shall expressly assume by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect), satisfactory in form to the trustee and executed and delivered to the trustee, the due and punctual payment of the repurchase price, if applicable, of and all installment payments on all amortizing notes in accordance with the terms of the amortizing notes, and the due and punctual performance and observance of all the covenants and conditions of the Indenture with respect to such securities to be kept or performed by us; and
- the successor entity to such consolidation or merger, or the entity which acquires substantially all of our assets, shall be a corporation organized and existing under the laws of the United States or any state thereof or the District of Columbia.

Modifications and Amendments

We and the trustee may amend or supplement the Indenture or the amortizing notes without the consent of the holders of the amortizing notes:

- to cure any ambiguity, mistake or inconsistency in the Indenture;
- to correct or supplement any provision contained in the Indenture or in any supplemental indenture which may be defective or inconsistent with any other provision contained in the Indenture or in any supplemental indenture, or to make such other provisions in regard to matters or questions arising under the Indenture or under any supplemental indenture as the Board of Directors may deem necessary or desirable and which shall not materially and adversely affect the interests of the holders of amortizing notes;
- evidence the succession of another corporation to the Company, or successive successions and the assumption by the successor corporation of the covenants, agreements and obligations of the Company;
- to provide for uncertificated amortizing notes in addition to or in place of certificated amortizing notes;
- to add to the covenants of the Company for the benefit of the holders of amortizing notes or to surrender any right or power herein conferred upon the Company;
- to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of amortizing notes, as set forth in the Indenture;

- to make any change that does not adversely affect the rights of any holder of amortizing notes in any material respect;
- to provide for the issuance of and establish the form and terms and conditions of the amortizing notes, to establish the form of any certifications required to be furnished pursuant to the terms of the Indenture or amortizing notes, or to add to the rights of the holders of amortizing notes;
- to add or change CUSIP numbers or other identifying numbers of the amortizing notes upon notice to holders of amortizing notes;
- to remove any legends placed on an amortizing note in accordance with the Indenture;
- to add any additional Events of Default;
- to amend or supplement the Indenture or the amortizing notes to conform the provisions of the Indenture or the amortizing notes to any provision of the “Description of the Amortizing Notes” section in the preliminary prospectus supplement related to the offering of the Units, as supplemented by the related pricing term sheet;
- to change or eliminate any of the provisions of the Indenture, provided that any such change or elimination shall become effective only when there are no amortizing notes outstanding created prior to the execution of such supplemental indenture which is entitled to the benefit of such provision; and
- to evidence and provide for the acceptance of appointment under the Indenture by a successor trustee with respect to amortizing notes and to add to or change any of the provisions of the Indenture as shall be necessary to provide for or facilitate the administration of the trusts under the Indenture by more than the one Trustee.

In addition, we may modify and amend the Indenture as to all other matters with the consent of the holders of at least a majority in principal amount of the amortizing notes affected by the modifications or amendments; provided however that we may not make any modification or amendment without the consent of the holders of amortizing notes then outstanding if that amendment will:

- extend the fixed maturity of the amortizing notes;
- reduce the principal amount of the amortizing notes;
- reduce the rate or extend the time of payment of interest on the amortizing notes;
- reduce any premium payable upon the redemption of the amortizing notes;
- reduce the percentage of the holders of the amortizing notes required to consent to any such supplemental indenture;
- modify the right of any holder to receive or sue for payment of the repurchase price, if applicable, of or any installment payment that would be due at the stated maturity; or
- expressly subordinate the obligations of the amortizing notes to other indebtedness of the Company.

Except for certain specified provisions, the holders of at least a majority in principal amount of the outstanding the amortizing notes may on behalf of the holders of all the amortizing notes, waive our compliance with provisions of the Indenture. The holders of a majority in principal amount of the outstanding amortizing notes may also, on behalf of the holders of all the amortizing notes, waive any past default under the Indenture with respect to the amortizing notes and its consequences, except a default in the payment of the repurchase price, if applicable, of or any installment payment on any amortizing note; provided, however, that the holders of a majority

in principal amount of the outstanding amortizing notes may rescind an acceleration and its consequences, including any related payment default that resulted from the acceleration.

In addition, notwithstanding anything to the contrary, we may not make any modification or amendment to the Indenture or the amortizing notes without the consent of each holder affected thereby if that modification or amendment will:

- postpone any installment payment date or reduce the amount owed on any installment payment date; or
- reduce the repurchase price or amend or modify in any manner adverse to the holders of the amortizing notes our obligation to make such payment.

DESCRIPTION OF THE 0.500% SENIOR NOTES DUE 2021
DESCRIPTION OF THE 1.800% SENIOR NOTES DUE 2026

The following is a description of our 0.500% Senior Notes due 2021 (the “2021 notes”) and our 1.800% Senior Notes due 2026 (the “2026 notes,” and together with the 2021 notes, the “notes”), and does not purport to be complete. This description is subject to and qualified in its entirety by reference to the indenture, dated as of March 2, 2016, between us, as issuer, and U.S. Bank National Association, as trustee, and a related supplemental indenture, dated as of September 25, 2018 (together, the “Indenture”), which are incorporated by reference as exhibits to the Annual Report on Form 10-K of which this Exhibit 4.17 is a part.

General

The 2021 notes were initially limited to €300,000,000 aggregate principal amount. The maturity date of the 2021 notes is September 25, 2021.

The 2026 notes were initially limited to €8,000,000,000 aggregate principal amount. The maturity date of the 2026 notes is September 25, 2026.

We may from time to time, without giving notice to or seeking the consent of the holders of the original notes, issue notes having the same ranking and the same interest rate, maturity and other terms as the applicable notes. Any additional notes having such similar term, together with the applicable notes, will constitute a single series of notes under the Indenture, provided that any such further notes are issued pursuant to a “qualified reopening” of the original notes, are otherwise treated as part of the same “issue” of debt instruments as the original notes or are issued with no more than a de minimis amount of original discount, in each case for U.S. federal income tax purposes.

Interest and Principal

The 2021 notes bear interest at a fixed interest rate of 0.500% per annum. The 2026 notes bear interest at a fixed interest rate of 1.800% per annum.

Interest on the notes is payable annually in cash in arrears on September 25 of each year to holders of record at the close of business on the fifteenth calendar day (whether or not that date is a business day) immediately preceding such interest payment date.

Interest on the notes will be computed on the basis of the actual number of days in the period for which interest is being calculated and the actual number of days from and including the last date on which interest was paid on the notes, to but excluding the next scheduled interest payment date. This payment convention is referred to as ACTUAL/ACTUAL (ICMA) as defined in the rulebook of the International Capital Market Association.

Any payment otherwise required to be made in respect of the notes on a date that is not a business day may be made on the next succeeding business day with the same force and effect as if made on that date. No additional interest will accrue as a result of a delayed payment. A “business day” is defined in the Indenture as any day, other than a Saturday or Sunday, (1) which is not a day on which banking institutions in The City of New York or The City of London are authorized or required by law or executive order to close and (2) on which the Trans European Automated Real-time Gross Settlement Express Transfer system (the TARGET2 system), or any successor thereto, operates.

Ranking

The notes are our direct, unsecured and unsubordinated obligations and rank equally with all of our existing and future other unsecured and unsubordinated indebtedness. The notes are effectively subordinated to any of our

existing and future secured indebtedness, to the extent of the assets securing such indebtedness, and are effectively subordinated to all liabilities of our subsidiaries, including trade payables.

Issuance in Euro; Payment on the Notes

Initial holders were required to pay for the notes in euro, and all payments on the notes will be payable in euro; provided that if the euro is unavailable to us due to the imposition of exchange controls or other circumstances beyond our control or if the euro is no longer being used by the then member states of the European Monetary Union that have adopted the euro as their currency or for the settlement of transactions by public institutions of or within the international banking community, then all payments in respect of the notes will be made in U.S. dollars until the euro is again available to us or so used. The amount payable on any date in euros will be converted into U.S. dollars on the basis of the then most recently available market exchange rate for the euro. Any payment in respect of the notes so made in U.S. dollars will not constitute an event of default under the notes or the Indenture.

Place of Payment; Transfer and Exchange

The place or places where payments will be made, where the notes may be surrendered for registration of transfer, exchange or redemption and where notices may be given to us in respect of the notes is the office of the paying agent at 125 Old Broad Street, Fifth Floor, London, EC2N 1AR (or such other office of the paying agent in London, United Kingdom as agreed to by the Company and the paying agent); provided, however, that the payment of interest may be made at our option by check mailed to the address of the person entitled thereto at such address as shall appear in the security register.

Optional Redemption

We may redeem each series of notes, in whole or in part, at our option, at any time prior to August 25, 2021 (one month prior to the maturity date) with respect to the 2021 notes, and June 25, 2026 (three months prior to the maturity date) with respect to the 2026 notes, at a redemption price equal to the greater of the following amounts:

- 100% of the principal amount of the notes to be redeemed on that redemption date; and
- the sum of the present values of the remaining scheduled payments of principal and interest on the notes to be redeemed on that redemption date, excluding accrued and unpaid interest on the redemption date, discounted to the redemption date on an annual basis (*ACTUAL/ACTUAL* (ICMA) (as defined in the rulebook of the International Capital Markets Association)) at the applicable Comparable Government Bond Rate (as defined below), plus 15 basis points in the case of the 2021 notes and 25 basis points in the case of the 2026 notes;

plus, in each case, accrued and unpaid interest on the notes being redeemed to, but excluding, the redemption date.

On or after August 25, 2021 (one month prior to the maturity date) with respect to the 2021 notes, and June 25, 2026 (three months prior to the maturity date) with respect to the 2026 notes, the redemption price for the notes to be redeemed will be equal to 100% of the principal amount of the notes to be redeemed, plus accrued and unpaid interest on the notes to be redeemed to, but excluding, the redemption date.

Notwithstanding the foregoing, installments of interest on notes that are due and payable on interest payment dates falling on or prior to a redemption date will be payable on the interest payment date to the registered holders as of the close of business on the relevant record date in accordance with the notes and the Indenture.

We will mail notice of any redemption at least 30 days, but not more than 60 days, before the redemption date to each registered holder of the notes to be redeemed. Once notice of redemption is mailed, the notes called for redemption will become due and payable on the redemption date and at the applicable redemption price, plus accrued and unpaid interest to the redemption date. The notice of redemption will state any conditions applicable to a redemption and the amount of notes to be redeemed.

“*Comparable Government Bond*” means, in relation to any Comparable Government Bond Rate calculation, at the discretion of an independent investment bank selected by the Company, a German government bond (*Bundesanleihe*) whose maturity is closest to the maturity of the notes of the applicable series being redeemed, or if such independent investment bank in its discretion determines that such similar bond is not in issue, such other German government bond as such independent investment bank may, with the advice of three brokers of, and/or market makers in, German government bonds selected by such independent investment bank, determine to be appropriate for determining the Comparable Government Bond rate.

“*Comparable Government Bond Rate*” means the price, expressed as a percentage (rounded to three decimal places, with 0.0005 being rounded upwards), at which the gross redemption yield on the notes of the applicable series being redeemed, if they were to be purchased at such price on the third business day prior to the date fixed for redemption, would be equal to the gross redemption yield on such business day of the Comparable Government Bond on the basis of the middle market price of the Comparable Government Bond prevailing at 11:00 a.m. (London time) on such business day as determined by an independent investment bank selected by the Company.

On and after the redemption date, interest will cease to accrue on the notes or any portion of the notes called for redemption, unless we default in the payment of the redemption price and accrued interest. On or before the redemption date, we will deposit with a paying agent, or the trustee, money sufficient to pay the redemption price of and accrued interest on the notes to be redeemed on that date. If less than all of the notes are to be redeemed, the notes to be redeemed will be selected by the trustee, in accordance with the applicable depositary procedures; provided, however, that no notes of a principal amount of €100,000 or less shall be redeemed in part.

The notes are also subject to redemption prior to maturity if certain changes in U.S. tax law occur. If such changes occur, the notes may be redeemed at a redemption price of 100% of their principal amount plus accrued and unpaid interest to the date of redemption. See below “Redemption for Tax Reasons.”

Sinking Fund

The notes will not be entitled to the benefit of any mandatory redemption or sinking fund.

Offer to Repurchase Upon Change of Control Triggering Event

Upon a Change of Control Triggering Event (as defined below), unless we have previously exercised any right to redeem the notes as described above under “Optional Redemption,” each holder of notes will have the right to require us to repurchase all or any part (in minimum denominations of €100,000 or integral multiples of €1,000 in excess thereof) of such holder’s notes pursuant to the offer described below (the “Change of Control Offer”). In the Change of Control Offer, we will offer payment in cash equal to 101% of the aggregate principal amount of such notes repurchased plus accrued and unpaid interest, if any, on the notes repurchased, to, but excluding, the date of repurchase (the “Change of Control Payment”).

Within 30 days following the date upon which the Change of Control Triggering Event occurs, or, at our option, prior to any Change of Control but after the public announcement of the pending Change of Control, we will mail a notice to each holder of notes, with a copy to the trustee, describing the terms of the Change of Control Offer and offering to repurchase the notes. Such notice will state, among other things, the purchase date, which must be no earlier than 30 days and no later than 60 days from the date such notice is mailed, other than as may be required by law (the “Change of Control Payment Date”). If the notice is mailed prior to the date of consummation of the Change of Control, it will state that the Change of Control Offer is conditioned on the Change of Control being completed on or prior to the Change of Control Payment Date.

We will not be required to make a Change of Control Offer if a third party makes an offer to purchase the notes at a purchase price equal to 101% of the aggregate principal amount of the notes plus accrued and unpaid interest, if any, on such notes to the date of purchase, in the manner, at the times and otherwise in compliance with

the requirements for a Change of Control Offer made by us and such third party purchases all the notes properly tendered and not withdrawn under its offer.

On the Change of Control Payment Date, we will, to the extent lawful:

- accept for payment all notes or portions of notes properly tendered pursuant to the Change of Control Offer;
- deposit with the paying agent an amount equal to the Change of Control Payment in respect of all notes or portions of notes properly tendered; and
- deliver or cause to be delivered to the trustee for cancellation the notes properly accepted together with an officers' certificate stating the aggregate principal amount of the notes being purchased by us.

For purposes of the foregoing discussion of a repurchase at the option of holders upon the occurrence of a Change of Control, the following definitions are applicable:

"Change of Control" means the occurrence of any of the following: (1) the direct or indirect sale, lease, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of our properties or assets and of our subsidiaries' properties or assets taken as a whole to any "person" (as that term is used in Section 13(d)(3) and Section 14(d) of the Exchange Act) other than us or one of our subsidiaries; (2) the adoption of a plan relating to our liquidation or dissolution; (3) the consummation of any transaction (including, without limitation, any merger or consolidation), the result of which is that any "person" (as defined in clause (1) above) becomes the beneficial owner (as defined in Rule 13d-3 and Rule 13d-5 under the Exchange Act), directly or indirectly, of more than 50% of our then outstanding Voting Stock (measured by voting power rather than number of shares); or (4) we consolidate with, or merge with or into, any Person, or any Person consolidates with, or merges with or into, us, in any such event pursuant to a transaction in which any of our outstanding Voting Stock or Voting Stock of such other Person is converted into or exchanged for cash, securities or other property, other than any such transaction where the shares of our Voting Stock outstanding immediately prior to such transaction constitute, or are converted into or exchanged for, a majority of the Voting Stock of the surviving Person immediately after giving effect to such transaction.

"Change of Control Triggering Event" means the occurrence of both (1) a Change of Control and (2) a Ratings Event.

"Investment Grade" means a rating equal to or higher than Baa3 (or the equivalent) by Moody's and BBB- (or the equivalent) by S&P, or if applicable, the equivalent investment grade credit rating from any substitute Rating Agency selected by us.

"Moody's" means Moody's Investors Service, Inc. and its successors.

"Person" means any individual, corporation, partnership, joint venture, association, joint stock company, trust, unincorporated organization, limited liability company, government or any agency or political subdivision thereof or any other entity, and includes a "person" as used in Section 13(d)(3) of the Exchange Act.

"Rating Agencies" means (1) each of Moody's and S&P; and (2) if either of Moody's or S&P ceases to rate the notes or fails to make a rating of the notes publicly available for reasons outside of our control, a "nationally recognized statistical rating organization" within the meaning of Rule 15c3-1(c)(2)(vi)(F) under the Exchange Act, selected by us (as certified by a resolution of our board of directors) as a replacement agency for Moody's or S&P, or both as the case may be.

"Ratings Event" means the occurrence of the events described in (1) or (2) below on any date during the period commencing 60 days prior to the date of the public notice of the occurrence of a Change of Control or our intention to effect a Change of Control and ending 60 days following consummation of such Change of Control (the

“Trigger Period”), which Trigger Period shall be extended so long as the rating of the notes is under publicly announced consideration for possible downgrade by either of the Rating Agencies: (1) in the event the notes are rated by both Rating Agencies as investment grade, the rating of the notes shall be reduced so that the notes are rated below investment grade by both Rating Agencies, or (2) in the event the notes are rated investment grade by one Rating Agency and below investment grade by the other Rating Agency, the rating of the notes by either Rating Agency shall be decreased by one or more gradations (including gradations within rating categories, as well as between rating categories) so that the notes are then rated below investment grade by both Rating Agencies.

“S&P” means S&P Global Ratings, a division of S&P Global, Inc. and its successors.

“*Voting Stock*” of a Person means shares, interests, participations or other equivalents in the equity interest (however designated) in such Person having ordinary voting power for the election of a majority of the directors (or the equivalent) of such Person, other than shares, interests, participations or other equivalents having such power only by reason of the occurrence of a contingency.

Certain Covenants

Limitations on Liens

We will not, and will not permit any Restricted Subsidiary (as defined below) to, issue, incur, create, assume or guarantee any debt for borrowed money (collectively referred to as “Debt”) secured by any mortgage, security interest, pledge, lien, charge or other encumbrance (each a “Lien” and collectively, “Liens”) on any Principal Property (as defined below) or shares of stock (or other equivalents of or interests in equity) or indebtedness of a Restricted Subsidiary, unless the notes, and, at our option, any other indebtedness or guarantee ranking equally with such notes, are secured equally and ratably with, or at our option, prior to, such secured Debt, for so long as such Debt is so secured.

This restriction will not apply to Debt secured by:

- liens on property, shares of stock or indebtedness of an entity existing at the time it becomes a Restricted Subsidiary, but not created in anticipation of the transaction in which such entity becomes a Restricted Subsidiary;
- liens on property acquired by us or a Restricted Subsidiary existing at the time of acquisition by us or a Restricted Subsidiary;
- liens on property acquired by us or a Restricted Subsidiary and created prior to, at the time of, or within 180 days after the acquisition of such property, or the completion of construction, the completion of improvements or the commencement of substantial commercial operation of such property, for the purpose of financing all or any part of the purchase price of such property, such construction or the making of such improvements;
- liens on property, shares of stock or indebtedness of an entity existing at the time such entity is merged into or consolidated with us or a Restricted Subsidiary or at the time of a sale, lease or other disposition of all or substantially all of the properties of an entity as an entirety or substantially as an entirety to us or a Restricted Subsidiary, provided that the lien was not incurred in contemplation of such merger or consolidation or sale, lease or other disposition;
- liens on our or a Restricted Subsidiary’s property or in favor of governmental bodies to secure payments of amounts owed under contract or statute or to secure any indebtedness incurred for the purpose of financing all or any part of the purchase price or the cost of constructing or improving the property subject to such liens;
- liens to secure indebtedness owing to us or a Restricted Subsidiary;

- liens existing on the date of the initial issuance of the notes; and
- any extension, renewal or replacement of any Lien referred to above or of any Debt secured by that Lien; provided, however, that such extension, renewal or replacement Lien will secure no larger an amount of Debt than that existing at the time of such extension, renewal or replacement.

Notwithstanding the restrictions described above, we or a Restricted Subsidiary may issue, incur, create, assume or guarantee Debt secured by a Lien which would otherwise be subject to the foregoing restrictions without equally and ratably securing the notes, provided that after giving effect to the Debt secured by such Lien, the aggregate amount of all Debt so secured by Liens, not including Liens permitted above, does not exceed the greater of (1) 15% of Consolidated Net Tangible Assets (as defined below) or (2) \$100 million.

Limitations on Sale and Lease-back Transactions

Sale and Lease-Back Transactions (as defined below) by us or any Restricted Subsidiary of any Principal Property, other than any such transaction involving a lease for a term of not more than three years or any such transaction between us and one of our Restricted Subsidiaries or between Restricted Subsidiaries, are prohibited unless at the effective time of such transaction:

- we or the Restricted Subsidiary would be entitled, pursuant to the covenant relating to “Limitation on Liens,” without equally and ratably securing the notes, to incur Debt secured by a Lien on the Principal Property involved in such transaction in an amount at least equal to the Attributable Debt (as defined below) with respect to such Sale and Lease-Back Transaction; or
- we or the Restricted Subsidiary applies, within 180 days of the effective date of the Sale and Lease-Back Transaction, an amount equal to the greater of (1) the net proceeds of such sale or (2) the Attributable Debt with respect to such Sale and Lease-Back Transaction, to either, or a combination of, (x) the prepayment or retirement, other than any mandatory retirement, mandatory prepayment or sinking fund payment or payment at maturity, of debt for borrowed money of us or a Restricted Subsidiary, other than debt subordinate to the notes or debt to us or a Restricted Subsidiary, that matures more than 12 months after its creation or (y) the purchase, construction or development of other comparable property.

Certain Definitions

For purposes of the foregoing discussion of certain covenants, the following definitions are applicable:

“*Attributable Debt*” as used with respect to a Sale and Lease-Back Transaction, means, at the time of determination, the lesser of (a) the fair market value of the Principal Property leased, as determined in good faith by our Board of Directors, or (b) the present value of the total net amount of rent required to be paid under such lease during the remaining term thereof, including any period for which such lease has been extended, discounted at the rate of interest set forth or implicit in the terms of such lease, as determined in good faith by our Board of Directors, compounded semi-annually.

“*Consolidated Net Tangible Assets*” means, as of any particular time, the aggregate amount of assets included on our consolidated balance sheet as of the end of the last fiscal quarter for which financial information is available, less applicable reserves and other properly deductible items, after deducting from such amount:

- all current liabilities, including current maturities of long-term indebtedness and current maturities of obligations under capital leases; and
- the total of the net book values of all assets of us and our Subsidiaries properly classified as intangible assets under U.S. generally accepted accounting principles, including goodwill, trade names, trademarks, patents, unamortized debt discount and expense and other like intangible assets.

“*Principal Property*” means the land, improvements, buildings and fixtures (including any leasehold interest therein), constituting the principal corporate office, any manufacturing plant or any manufacturing or

research or engineering facility, whether owned at or acquired after the date of the Indenture, that is owned or leased by us or a Restricted Subsidiary, that is located within the continental United States, and that has a net book value at the time of the determination in excess of the greater of 10% of our Consolidated Net Tangible Assets or \$50 million, unless our Board of Directors has determined in good faith that such property is not material to the operation of the business conducted by us and our Subsidiaries taken as a whole; provided, however, for purposes of the Indenture, our corporate office located at 521 West 57th Street, New York, New York 10019-2960 will not be deemed a Principal Property.

“*Restricted Subsidiary*” means any Subsidiary (1) substantially all of whose property is located within the continental United States, (2) which owns a Principal Property and (3) in which our investment exceeds 1% of the aggregate amount of assets included on our consolidated balance sheet as of the end of the last fiscal quarter for which financial information is available. However, the term “*Restricted Subsidiary*” does not include any Subsidiary that is principally engaged in certain types of leasing and financing activities.

“*Sale and Lease-Back Transaction*” means any arrangement with any person providing for the leasing by us or any Restricted Subsidiary of any Principal Property, whether owned at the date of the issuance of the notes or thereafter acquired, excluding temporary leases of a term, including renewal periods, of not more than three years, that has been or is to be sold or transferred by us or any Restricted Subsidiary to such person with the intention of taking back a lease of this property.

“*Subsidiary*” means (a) any corporation at least a majority of whose outstanding voting stock shall at the time be owned, directly or indirectly, by us or by one or more of our subsidiaries or by us and one or more of our subsidiaries, (b) any general partnership, limited liability company, joint venture or similar entity, at least a majority of whose outstanding partnership or similar interests shall at the time be owned by us, or by one or more of our subsidiaries, or by us and one or more of our subsidiaries and (c) any limited partnership of which we or any of our subsidiaries is a general partner.

Redemption for Tax Reasons

If, as a result of any change in, or amendment to, the laws (or any regulations or rulings promulgated under the laws) of the United States (or any political subdivision or taxing authority of or in the United States), or any change in, or amendments to, an official position regarding the application or interpretation of such laws, regulations or rulings, which change or amendment is announced or becomes effective on or after September 20, 2018, we become or will become obligated, based upon a written opinion of independent counsel selected by us, to pay additional amounts as described herein under the heading “—Payment of Additional Amounts” with respect to a series of notes, and we cannot avoid such obligation by reasonable measures available to us, then we may at our option redeem, in whole, but not in part, such series of notes on not less than 30 nor more than 60 days’ prior notice, at a redemption price equal to 100% of their principal amount, together with interest accrued but unpaid on those notes to (but excluding) the date fixed for redemption, provided that no such notice of redemption shall be given earlier than 90 days prior to the earliest date on which we would be obliged to pay additional amounts as a payment in respect of the notes then due.

Payment of Additional Amounts

All payments of principal and interest in respect of the notes will be made free and clear of, and without deduction or withholding for or on account of, any present or future taxes, duties, assessments or other governmental charges of whatever nature required to be deducted or withheld by the United States or any political subdivision or taxing authority of or in the United States, unless such withholding or deduction is required by law.

If such withholding or deduction is required by law, we will pay such additional amounts on the notes as will result in receipt by each beneficial owner of a note that is not a United States Person (as defined below) of such amounts (after all such withholding or deduction, including on any additional amounts) as would have been received by such beneficial owner had no such withholding or deduction been required. The foregoing obligation, however, to make any payment of additional amounts will not apply:

1. to any tax, assessment or other governmental charge that would not have been imposed but for the holder or beneficial owner, a fiduciary, settlor, beneficiary, member or shareholder of the holder or beneficial owner, or a person holding a power over an estate or trust administered by a fiduciary holder or beneficial owner, being treated as:
 - a. being or having been present in, or engaged in a trade or business in, the United States, being treated as having been present in, or engaged in a trade or business in, the United States, or having or having had a permanent establishment in the United States;
 - b. having a current or former connection with the United States (other than a connection arising solely as a result of the ownership of the notes, the receipt of any payment in respect of the notes or the enforcement of any rights under the Indenture), including being or having been a citizen or resident of the United States or treated as being or having been a resident thereof;
 - c. being or having been a personal holding company, a passive foreign investment company or a controlled foreign corporation for U.S. federal income tax purposes, a foreign tax exempt organization, or a corporation that has accumulated earnings to avoid United States federal income tax;
 - d. being or having been a “10-percent shareholder,” as defined in section 871(h)(3) of the United States Internal Revenue Code of 1986, as amended (the “Code”), or any successor provision, of us; or
 - e. being a bank receiving payments on an extension of credit made pursuant to a loan agreement entered into in the ordinary course of its trade or business, within the meaning of section 881(c)(3) of the Code or any successor provision;
2. to any beneficial owner that is not the sole beneficial owner of the notes, or a portion of the notes, or that is a fiduciary, partnership or limited liability company, but only to the extent that a beneficiary or settlor with respect to the fiduciary, a beneficial owner or member of the partnership or limited liability company would not have been entitled to the payment of an additional amount had the beneficiary, settlor, beneficial owner or member received directly its beneficial or distributive share of the payment;
3. to any tax, assessment or other governmental charge that would not have been imposed but for the failure of the holder or beneficial owner (or their agents) to comply with certification, identification or information reporting requirements concerning the nationality, residence, identity or connection with the United States of the holder or beneficial owner of the notes, if compliance is required by statute, by regulation of the United States or any taxing authority therein or by an applicable income tax treaty to which the United States is a party as a precondition to exemption from such tax, assessment or other governmental charge;
4. to any tax, assessment or other governmental charge that is imposed otherwise than by withholding or deducting by us or a paying agent from the payment;
5. to any estate, inheritance, gift, sales, excise, transfer, wealth, capital gains or personal property tax or similar tax, assessment or other governmental charge;
6. to any tax, assessment or other governmental charge that would not have been imposed but for the presentation by the holder of any note, where presentation is required, for payment on a date more than 30 days after the date on which payment became due and payable or the date on which payment thereof is duly provided for, whichever occurs later;

7. to any tax, assessment or other governmental charge required to be withheld or deducted that is imposed on a payment pursuant to Sections 1471 through 1474 of the Code (or any amended or successor version of such Sections that is substantively comparable and not materially more onerous to comply with), any Treasury regulations promulgated thereunder, or any other official interpretations thereof (collectively, "FATCA"), any agreement (including any intergovernmental agreement) entered into in connection therewith, or any law, regulation or other official guidance enacted in any jurisdiction implementing FATCA or an intergovernmental agreement in respect of FATCA;
8. any tax, assessment or other governmental charge that is imposed or withheld solely by reason of a change in law, regulation, or administrative or judicial interpretation that becomes effective more than 15 days after the payment becomes due or is duly provided for, whichever occurs later; or
9. in the case of any combination of items (1) through (8).

Except as specifically provided under this heading "Payment of Additional Amounts," we will not be required to pay additional amounts in respect of any tax, assessment or other governmental charge.

As used under this heading "Payment of Additional Amounts" and under the heading "Redemption for Tax Reasons," the term "United States" means the United States of America, any state thereof, and the District of Columbia, and the term "United States Person" means a citizen or individual resident of the United States, a corporation (or other entity that is treated as a corporation for U.S. federal income tax purposes) that is created or organized in or under the laws of the United States, or any State thereof or the District of Columbia, an estate whose income is subject to U.S. federal income tax regardless of its source, or a trust (i) if a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons are authorized to control all substantial decisions of the trust, or (ii) that validly elects to be treated as a U.S. person for U.S. federal income tax purposes.

Discharge, Defeasance and Covenant Defeasance

Discharge. We may discharge some obligations to holders of any series of notes that either have become due and payable or will become due and payable within one year, or scheduled for redemption within one year, by irrevocably depositing with the trustee, in trust, funds in euro in an amount sufficient to pay the notes, including any premium and interest.

Full Defeasance. We can, under particular circumstances, effect a full defeasance of the holder's series of notes. By this we mean we can legally release ourselves from any payment or other obligations on the notes if we put in place the following arrangements to repay the holder:

- We must deposit in trust for the holder's benefit and the benefit of all other direct holders of the notes a combination of money and U.S. government or U.S. government agency notes or bonds that will generate enough cash to make interest, principal and any other payments on the notes on their various due dates.
- We must deliver to the trustee a legal opinion confirming that the holders of outstanding notes of such series will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to U.S. federal income tax on the same amount and in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred, based on the fact that (i) the Company has received from, or there has been published by, the Internal Revenue Service a ruling (which ruling may be, but need not be, issued with respect to the Company) or (ii) since the date of the Indenture, there has been a change in the applicable U.S. federal income tax law.

If we did accomplish full defeasance, the holder would have to rely solely on the trust deposit for repayment on the notes. A holder could not look to us for repayment in the unlikely event of any shortfall. Conversely, the trust deposit would most likely be protected from claims of our lenders and other creditors if we ever become bankrupt or insolvent.

Covenant Defeasance. Under current federal tax law, we can make the same type of deposit described above and be released from some of the restrictive covenants in the notes. This is called “covenant defeasance.” In that event, the holder would lose the protection of those restrictive covenants but would gain the protection of having money and securities set aside in trust to repay the securities and the holder would be released from any subordination provisions. In order to achieve covenant defeasance, we must do the following:

- We must deposit in trust for the holder’s benefit and the benefit of all other direct holders of the notes a combination of money and U.S. government or U.S. government agency notes or bonds that will generate enough cash to make interest, principal and any other payments on the notes on their various due dates.
- We must deliver to the trustee a legal opinion confirming that under current federal income tax law we may make the above deposit without causing the holder to be taxed on the notes any differently than if we did not make the deposit and just repaid the notes ourselves.

If we accomplish covenant defeasance, certain covenants in the Indenture and the notes would no longer apply. If we accomplish covenant defeasance, the holder can still look to us for repayment of the notes if there were a shortfall in the trust deposit. If one of the remaining events of default occurs, for example, our bankruptcy, and the notes become immediately due and payable, there may be a shortfall. Depending on the event causing the default, the holder may not be able to obtain payment of the shortfall.

Listing of Notes

The 2021 notes are listed on the NYSE under the symbol “IFF 21” and the 2026 notes are listed on the NYSE under the symbol “IFF 26.”

Concerning the Trustee, Paying Agent, Transfer Agent and Registrar

The trustee with respect to the notes is U.S. Bank National Association. Elavon Financial Services DAC, UK Branch acts as the paying agent with respect to the notes. U.S. Bank National Association acts as transfer agent and registrar with respect to the notes.

DESCRIPTION OF THE 1.750% SENIOR NOTES DUE 2024

The following is a description of our 1.750% Senior Notes due 2024 (the “notes”), and does not purport to be complete. This description is subject to and qualified in its entirety by reference to the indenture, dated as of March 2, 2016, between us, as issuer, and U.S. Bank National Association, as trustee, and a related supplemental indenture, dated as of March 14, 2016 (together, the “Indenture”), which are incorporated by reference as exhibits to the Annual Report on Form 10-K of which this Exhibit 4.17 is a part.

General

The notes were initially limited to aggregate principal amount of €500,000,000. The maturity date of the notes is March 14, 2024.

We may from time to time, without giving notice to or seeking the consent of the holders of the original notes, issue notes having the same ranking and the same interest rate, maturity and other terms as the original notes. Any additional notes having such similar terms, together with the applicable original notes, will constitute a single series of notes under the Indenture, provided that any such further securities will be fungible with the notes for U.S. federal income tax purposes.

Interest and Principal

The notes bear interest at a fixed interest rate of 1.75% per annum.

The interest on the notes accrue from March 14, 2016, and are payable annually in cash in arrears on March 14 of each year to holders of record at the close of business on the fifteenth calendar day (whether or not that date is a business day), immediately preceding such interest payment date.

Interest on the notes will be computed on the basis of the actual number of days in the period for which interest is being calculated and the actual number of days from and including the last date on which interest was paid on the notes, to but excluding the next scheduled interest payment date. This payment convention is referred to as ACTUAL/ACTUAL (ICMA) as defined in the rulebook of the International Capital Market Association.

Any payment otherwise required to be made in respect of the notes on a date that is not a business day may be made on the next succeeding business day with the same force and effect as if made on that date. No additional interest will accrue as a result of a delayed payment. A “business day” is defined in the Indenture as any day, other than a Saturday or Sunday, (1) which is not a day on which banking institutions in The City of New York or The City of London are authorized or required by law or executive order to close and (2) on which the Trans-European Automated Real-time Gross Settlement Express Transfer system (the TARGET2 system), or any successor thereto, operates.

Ranking

The notes are our direct, unsecured and unsubordinated obligations and will rank equally with all of our existing and future other unsecured and unsubordinated indebtedness. The notes are effectively subordinated to any of our existing and future secured indebtedness, to the extent of the assets securing such indebtedness, and will be effectively subordinated to all liabilities of our subsidiaries, including trade payables.

Issuance in Euro; Payment on the Notes

Initial holders were required to pay for the notes in euro, and all payments on the notes will be payable in euro; provided that if the euro is unavailable to us due to the imposition of exchange controls or other circumstances beyond our control or if the euro is no longer being used by the then member states of the European Monetary Union

that have adopted the euro as their currency or for the settlement of transactions by public institutions of or within the international banking community, then all payments in respect of the notes will be made in U.S. dollars until the euro is again available to us or so used. The amount payable on any date in euro will be converted into U.S. dollars on the basis of the then most recently available market exchange rate for euro. Any payment in respect of the notes so made in U.S. dollars will not constitute an event of default under the notes or the Indenture.

Place of Payment; Transfer and Exchange

The place or places where payments will be made, where the notes may be surrendered for registration of transfer, exchange or redemption and where notices may be given to us in respect of the notes is the office of the paying agent at Fifth Floor, 125 Old Broad Street, London EC2N 1AR, United Kingdom (or such other office of the paying agent in London, United Kingdom as agreed to by the Company and the paying agent); provided, however, that the payment of interest may be made at our option by check mailed to the address of the person entitled thereto at such address as shall appear in the security register.

Optional Redemption

The notes may be redeemed, in whole or in part, at our option, at any time or from time to time. Prior to December 14, 2023 (three months prior to the maturity of the notes), the redemption price for the notes to be redeemed will be equal to the greater of the following amounts:

- 100% of the principal amount of the notes to be redeemed on that redemption date; and
- the sum of the present values of the remaining scheduled payments of principal and interest on the notes to be redeemed on that redemption date, not including any portion of any payments of interest accrued to the redemption date, discounted to the redemption date on an annual basis (ACTUAL/ACTUAL (ICMA) (as defined in the rulebook of the International Capital Markets Association)) at the applicable Comparable Government Bond Rate (as defined below), plus 30 basis points;

plus, in each case, accrued and unpaid interest on the notes being redeemed to, but excluding, the redemption date.

On or after December 14, 2023 (three months prior to the maturity of the notes), the redemption price for the notes to be redeemed will be equal to 100% of the principal amount of the notes to be redeemed, plus accrued and unpaid interest on the notes to, but excluding, the redemption date.

Notwithstanding the foregoing, installments of interest on notes that are due and payable on interest payment dates falling on or prior to a redemption date will be payable on the interest payment date to the registered holders as of the close of business on the relevant record date in accordance with the notes and the Indenture.

We will mail notice of any redemption at least 30 days, but not more than 60 days, before the redemption date to each registered holder of the notes to be redeemed. Once notice of redemption is mailed, the notes called for redemption will become due and payable on the redemption date and at the applicable redemption price, plus accrued and unpaid interest to the redemption date. The notice of redemption will state any conditions applicable to a redemption and the amount of notes to be redeemed.

“*Comparable Government Bond*” means, in relation to any Comparable Government Bond Rate calculation, at the discretion of an independent investment bank selected by the Company, a German government bond (*Bundesanleihe*) whose maturity is closest to the maturity of the notes being redeemed, or if such independent investment bank in its discretion determines that such similar bond is not in issue, such other German government bond as such independent investment bank may, with the advice of three brokers of, and/or market makers in, German government bonds selected by such independent investment bank, determine to be appropriate for determining the Comparable Government Bond rate.

“*Comparable Government Bond Rate*” means the price, expressed as a percentage (rounded to three decimal places, with 0.0005 being rounded upwards), at which the gross redemption yield on the notes, if they were

to be purchased at such price on the third business day prior to the date fixed for redemption, would be equal to the gross redemption yield on such business day of the Comparable Government Bond on the basis of the middle market price of the Comparable Government Bond prevailing at 11:00 a.m. (London time) on such business day as determined by an independent investment bank selected by the Company.

On and after the redemption date, interest will cease to accrue on the notes or any portion of the notes called for redemption, unless we default in the payment of the redemption price and accrued interest. On or before the redemption date, we will deposit with a paying agent, or the trustee, money sufficient to pay the redemption price of and accrued interest on the notes to be redeemed on that date. If less than all of the notes are to be redeemed, the notes to be redeemed will be selected by the trustee, in accordance with the applicable depositary procedures; provided, however, that no notes of a principal amount of €100,000 or less shall be redeemed in part.

The notes are also subject to redemption prior to maturity if certain changes in U.S. tax law occur. If such changes occur, the notes may be redeemed at a redemption price of 100% of their principal amount plus accrued and unpaid interest to the date of redemption. See below “Redemption for Tax Reasons.”

Sinking Fund

The notes will not be entitled to the benefit of any mandatory redemption or sinking fund.

Offer to Repurchase Upon Change of Control Triggering Event

Upon a Change of Control Triggering Event (as defined below), unless we have previously exercised any right to redeem the notes as described above under “Optional Redemption,” each holder of notes will have the right to require us to repurchase all or any part (in minimum denominations of €100,000 or integral multiples of €1,000 in excess thereof) of such holder’s notes pursuant to the offer described below (the “Change of Control Offer”). In the Change of Control Offer, we will offer payment in cash equal to 101% of the aggregate principal amount of such notes repurchased plus accrued and unpaid interest, if any, on the notes repurchased, to, but not including, the date of repurchase (the “Change of Control Payment”).

Within 30 days following the date upon which the Change of Control Triggering Event occurs, or, at our option, prior to any Change of Control but after the public announcement of the pending Change of Control, we will mail a notice to each holder of notes, with a copy to the trustee, describing the terms of the Change of Control Offer and offering to repurchase the notes. Such notice will state, among other things, the purchase date, which must be no earlier than 30 days and no later than 60 days from the date such notice is mailed, other than as may be required by law (the “Change of Control Payment Date”). If the notice is mailed prior to the date of consummation of the Change of Control, it will state that the Change of Control Offer is conditioned on the Change of Control being completed on or prior to the Change of Control Payment Date.

We will not be required to make a Change of Control Offer if a third party makes an offer to purchase the notes at a purchase price equal to 101% of the aggregate principal amount of the notes plus accrued and unpaid interest, if any, on such notes to the date of purchase, in the manner, at the times and otherwise in compliance with the requirements for a Change of Control Offer made by us and such third party purchases all the notes properly tendered and not withdrawn under its offer.

On the Change of Control Payment Date, we will, to the extent lawful:

- accept for payment all notes or portions of notes properly tendered pursuant to the Change of Control Offer;
- deposit with the paying agent an amount equal to the Change of Control Payment in respect of all notes or portions of notes properly tendered; and

- deliver or cause to be delivered to the trustee for cancellation the notes properly accepted together with an officers' certificate stating the aggregate principal amount of the notes being purchased by us.

For purposes of the foregoing discussion of a repurchase at the option of holders upon the occurrence of a Change of Control, the following definitions are applicable:

"Change of Control" means the occurrence of any of the following: (1) the direct or indirect sale, lease, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of our properties or assets and of our subsidiaries' properties or assets taken as a whole to any "person" (as that term is used in Section 13(d)(3) and Section 14(d) of the Exchange Act) other than us or one of our subsidiaries; (2) the adoption of a plan relating to our liquidation or dissolution; (3) the consummation of any transaction (including, without limitation, any merger or consolidation), the result of which is that any "person" (as defined in clause (1) above) becomes the beneficial owner (as defined in Rule 13d-3 and Rule 13d-5 under the Exchange Act), directly or indirectly, of more than 50% of our then outstanding Voting Stock (measured by voting power rather than number of shares); or (4) we consolidate with, or merge with or into, any Person, or any Person consolidates with, or merges with or into, us, in any such event pursuant to a transaction in which any of our outstanding Voting Stock or Voting Stock of such other Person is converted into or exchanged for cash, securities or other property, other than any such transaction where the shares of our Voting Stock outstanding immediately prior to such transaction constitute, or are converted into or exchanged for, a majority of the Voting Stock of the surviving Person immediately after giving effect to such transaction.

"Change of Control Triggering Event" means the occurrence of both (1) a Change of Control and (2) a Ratings Event.

"Investment Grade" means a rating equal to or higher than Baa3 (or the equivalent) by Moody's and BBB- (or the equivalent) by S&P, or if applicable, the equivalent investment grade credit rating from any substitute Rating Agency selected by us.

"Moody's" means Moody's Investors Service, Inc.

"Person" means any individual, corporation, partnership, joint venture, association, joint stock company, trust, unincorporated organization, limited liability company, government or any agency or political subdivision thereof or any other entity, and includes a "person" as used in Section 13(d)(3) of the Exchange Act.

"Rating Agencies" means (1) each of Moody's and S&P; and (2) if either of Moody's or S&P ceases to rate the notes or fails to make a rating of the notes publicly available for reasons outside of our control, a "nationally recognized statistical rating organization" within the meaning of Rule 15c3-1(c)(2) (vi)(F) under the Exchange Act, selected by us (as certified by a resolution of our board of directors) as a replacement agency for Moody's or S&P, or both as the case may be.

"Ratings Event" means the occurrence of the events described in (1) or (2) below on any date during the period commencing 60 days prior to the date of the public notice of the occurrence of a Change of Control or our intention to effect a Change of Control and ending 60 days following consummation of such Change of Control (the "Trigger Period"), which Trigger Period shall be extended so long as the rating of the notes is under publicly announced consideration for possible downgrade by either of the Rating Agencies: (1) in the event the notes are rated by both Rating Agencies as investment grade, the rating of the notes shall be reduced so that the notes are rated below investment grade by both Rating Agencies, or (2) in the event the notes are rated investment grade by one Rating Agency and below investment grade by the other Rating Agency, the rating of the notes by either Rating Agency shall be decreased by one or more gradations (including gradations within rating categories, as well as between rating categories) so that the notes are then rated below investment grade by both Rating Agencies.

"S&P" means Standard & Poor's Ratings Services, a division of The McGraw-Hill Companies, Inc.

“*Voting Stock*” of a Person means shares, interests, participations or other equivalents in the equity interest (however designated) in such Person having ordinary voting power for the election of a majority of the directors (or the equivalent) of such Person, other than shares, interests, participations or other equivalents having such power only by reason of the occurrence of a contingency.

Certain Covenants

Limitations on Liens

We will not, and will not permit any Restricted Subsidiary (as defined below) to, issue, incur, create, assume or guarantee any debt for borrowed money (collectively referred to as “Debt”) secured by any mortgage, security interest, pledge, lien, charge or other encumbrance (each a “Lien” and collectively, “Liens”) on any Principal Property (as defined below) or shares of stock (or other equivalents of or interests in equity) or indebtedness of a Restricted Subsidiary, unless the notes, and, at our option, any other indebtedness or guarantee ranking equally with such notes, are secured equally and ratably with, or at our option, prior to, such secured Debt, for so long as such Debt is so secured.

This restriction will not apply to Debt secured by:

- liens on property, shares of stock or indebtedness of an entity existing at the time it becomes a Restricted Subsidiary, but not created in anticipation of the transaction in which such entity becomes a Restricted Subsidiary;
- liens on property acquired by us or a Restricted Subsidiary existing at the time of acquisition by us or a Restricted Subsidiary;
- liens on property acquired by us or a Restricted Subsidiary and created prior to, at the time of, or within 180 days after the acquisition of such property, or the completion of construction, the completion of improvements or the commencement of substantial commercial operation of such property, for the purpose of financing all or any part of the purchase price of such property, such construction or the making of such improvements;
- liens on property, shares of stock or indebtedness of an entity existing at the time such entity is merged into or consolidated with us or a Restricted Subsidiary or at the time of a sale, lease or other disposition of all or substantially all of the properties of an entity as an entirety or substantially as an entirety to us or a Restricted Subsidiary, provided that the lien was not incurred in contemplation of such merger or consolidation or sale, lease or other disposition;
- liens on our or a Restricted Subsidiary’s property or in favor of governmental bodies to secure payments of amounts owed under contract or statute or to secure any indebtedness incurred for the purpose of financing all or any part of the purchase price or the cost of constructing or improving the property subject to such liens;
- liens to secure indebtedness owing to us or a Restricted Subsidiary;
- liens existing on the date of the initial issuance of the notes; and
- any extension, renewal or replacement of any Lien referred to above or of any Debt secured by that Lien; provided, however, that such extension, renewal or replacement Lien will secure no larger an amount of Debt than that existing at the time of such extension, renewal or replacement.

Notwithstanding the restrictions described above, we or a Restricted Subsidiary may issue, incur, create, assume or guarantee Debt secured by a Lien which would otherwise be subject to the foregoing restrictions without equally and ratably securing the notes, provided that after giving effect to the Debt secured by such Lien, the aggregate amount of all Debt so secured by Liens, not including Liens permitted above, does not exceed the greater of (1) 15% of Consolidated Net Tangible Assets (as defined below) or (2) \$100 million.

Limitations on Sale and Lease-back Transactions

Sale and Lease-Back Transactions (as defined below) by us or any Restricted Subsidiary of any Principal Property, other than any such transaction involving a lease for a term of not more than three years or any such transaction between us and one of our Restricted Subsidiaries or between Restricted Subsidiaries, are prohibited unless at the effective time of such transaction:

- we or the Restricted Subsidiary would be entitled, pursuant to the covenant relating to “Limitation on Liens,” without equally and ratably securing the notes, to incur Debt secured by a Lien on the Principal Property involved in such transaction in an amount at least equal to the Attributable Debt (as defined below) with respect to such Sale and Lease-Back Transaction; or
- we or the Restricted Subsidiary applies, within 180 days of the effective date of the Sale and Lease-Back Transaction, an amount equal to the greater of (1) the net proceeds of such sale or (2) the Attributable Debt with respect to such Sale and Lease-Back Transaction, to either, or a combination of, (x) the prepayment or retirement, other than any mandatory retirement, mandatory prepayment or sinking fund payment or payment at maturity, of debt for borrowed money of us or a Restricted Subsidiary, other than debt subordinate to the notes or debt to us or a Restricted Subsidiary, that matures more than 12 months after its creation or (y) the purchase, construction or development of other comparable property.

Certain Definitions

For purposes of the foregoing discussion of certain covenants, the following definitions are applicable:

“*Attributable Debt*” as used with respect to a Sale and Lease-Back Transaction, means, at the time of determination, the lesser of (a) the fair market value of the Principal Property leased, as determined in good faith by our Board of Directors, or (b) the present value of the total net amount of rent required to be paid under such lease during the remaining term thereof, including any period for which such lease has been extended, discounted at the rate of interest set forth or implicit in the terms of such lease, as determined in good faith by our Board of Directors, compounded semi-annually.

“*Consolidated Net Tangible Assets*” means, as of any particular time, the aggregate amount of assets included on our consolidated balance sheet as of the end of the last fiscal quarter for which financial information is available, less applicable reserves and other properly deductible items, after deducting from such amount:

- all current liabilities, including current maturities of long-term indebtedness and current maturities of obligations under capital leases; and
- the total of the net book values of all assets of us and our Subsidiaries properly classified as intangible assets under U.S. generally accepted accounting principles, including goodwill, trade names, trademarks, patents, unamortized debt discount and expense and other like intangible assets.

“*Principal Property*” means the land, improvements, buildings and fixtures (including any leasehold interest therein), constituting the principal corporate office, any manufacturing plant or any manufacturing or research or engineering facility, whether owned at or acquired after the date of the Indenture, that is owned or leased by us or a Restricted Subsidiary, that is located within the continental United States, and that has a net book value at the time of the determination in excess of the greater of 10% of our Consolidated Net Tangible Assets or \$50 million, unless our Board of Directors has determined in good faith that such property is not material to the operation of the business conducted by us and our Subsidiaries taken as a whole; provided, however, for purposes of the Indenture, our corporate office located at 521 West 57th Street, New York, New York 10019-2960 will not be deemed a Principal Property.

“*Restricted Subsidiary*” means any Subsidiary (1) substantially all of whose property is located within the continental United States, (2) which owns a Principal Property and (3) in which our investment exceeds 1% of the aggregate amount of assets included on our consolidated balance sheet as of the end of the last fiscal quarter for

which financial information is available. However, the term “Restricted Subsidiary” does not include any Subsidiary that is principally engaged in certain types of leasing and financing activities.

“*Sale and Lease-Back Transaction*” means any arrangement with any person providing for the leasing by us or any Restricted Subsidiary of any Principal Property, whether owned at the date of the issuance of the notes or thereafter acquired, excluding temporary leases of a term, including renewal periods, of not more than three years, that has been or is to be sold or transferred by us or any Restricted Subsidiary to such person with the intention of taking back a lease of this property.

“*Subsidiary*” means (a) any corporation at least a majority of whose outstanding voting stock shall at the time be owned, directly or indirectly, by us or by one or more of our subsidiaries or by us and one or more of our subsidiaries, (b) any general partnership, limited liability company, joint venture or similar entity, at least a majority of whose outstanding partnership or similar interests shall at the time be owned by us, or by one or more of our subsidiaries, or by us and one or more of our subsidiaries and (c) any limited partnership of which we or any of our subsidiaries is a general partner.

Redemption for Tax Reasons

If, as a result of any change in, or amendment to, the laws (or any regulations or rulings promulgated under the laws) of the United States (or any political subdivision or taxing authority of or in the United States), or any change in, or amendments to, an official position regarding the application or interpretation of such laws, regulations or rulings, which change or amendment is announced or becomes effective on or after March 7, 2016, we become or will become obligated, based upon a written opinion of independent counsel selected by us, to pay additional amounts as described herein under the heading “—Payment of Additional Amounts” with respect to the notes, and we cannot avoid such obligation by reasonable measures available to us, then we may at our option redeem, in whole, but not in part, the notes on not less than 30 nor more than 60 days’ prior notice, at a redemption price equal to 100% of their principal amount, together with interest accrued but unpaid on those notes to (but excluding) the date fixed for redemption, provided that no such notice of redemption shall be given earlier than 90 days prior to the earliest date on which we would be obliged to pay additional amounts as a payment in respect of the notes then due.

Payment of Additional Amounts

All payments of principal and interest in respect of the notes will be made free and clear of, and without deduction or withholding for or on account of, any present or future taxes, duties, assessments or other governmental charges of whatever nature required to be deducted or withheld by the United States or any political subdivision or taxing authority of or in the United States, unless such withholding or deduction is required by law.

If such withholding or deduction is required by law, we will pay such additional amounts on the notes as will result in receipt by each beneficial owner of a note that is not a United States Person (as defined below) of such amounts (after all such withholding or deduction, including on any additional amounts) as would have been received by such beneficial owner had no such withholding or deduction been required. The foregoing obligation, however, to make any payment of additional amounts will not apply:

1. to any tax, assessment or other governmental charge that would not have been imposed but for the holder or beneficial owner, a fiduciary, settlor, beneficiary, member or shareholder of the holder or beneficial owner, or a person holding a power over an estate or trust administered by a fiduciary holder or beneficial owner, being treated as:
 - a. being or having been present in, or engaged in a trade or business in, the United States, being treated as having been present in, or engaged in a trade or business in, the United States, or having or having had a permanent establishment in the United States;

- b. having a current or former connection with the United States (other than a connection arising solely as a result of the ownership of the notes, the receipt of any payment in respect of the notes or the enforcement of any rights under the Indenture), including being or having been a citizen or resident of the United States or treated as being or having been a resident thereof;
 - c. being or having been a personal holding company, a passive foreign investment company or a controlled foreign corporation for U.S. federal income tax purposes, a foreign tax exempt organization, or a corporation that has accumulated earnings to avoid United States federal income tax;
 - d. being or having been a “10-percent shareholder,” as defined in section 871(h)(3) of the United States Internal Revenue Code of 1986, as amended (the “Code”), or any successor provision, of us; or
 - e. being a bank receiving payments on an extension of credit made pursuant to a loan agreement entered into in the ordinary course of its trade or business, within the meaning of section 881(c)(3) of the Code or any successor provision;
2. to any beneficial owner that is not the sole beneficial owner of the notes, or a portion of the notes, or that is a fiduciary, partnership or limited liability company, but only to the extent that a beneficiary or settlor with respect to the fiduciary, a beneficial owner or member of the partnership or limited liability company would not have been entitled to the payment of an additional amount had the beneficiary, settlor, beneficial owner or member received directly its beneficial or distributive share of the payment;
 3. to any tax, assessment or other governmental charge that would not have been imposed but for the failure of the holder or any other person to comply with certification, identification or information reporting requirements concerning the nationality, residence, identity or connection with the United States of the holder or beneficial owner of the notes, if compliance is required by statute, by regulation of the United States or any taxing authority therein or by an applicable income tax treaty to which the United States is a party as a precondition to exemption from such tax, assessment or other governmental charge;
 4. to any tax, assessment or other governmental charge that is imposed otherwise than by withholding or deducting by us or a paying agent from the payment;
 5. to any estate, inheritance, gift, sales, excise, transfer, wealth, capital gains or personal property tax or similar tax, assessment or other governmental charge;
 6. to any tax, assessment or other governmental charge that would not have been imposed but for the presentation by the holder of any note, where presentation is required, for payment on a date more than 30 days after the date on which payment became due and payable or the date on which payment thereof is duly provided for, whichever occurs later;
 7. to any tax, assessment or other governmental charge required to be withheld or deducted that is imposed on a payment pursuant to Sections 1471 through 1474 of the Code (or any amended or successor version of such Sections that is substantively comparable and not materially more onerous to comply with), any Treasury regulations promulgated thereunder, or any other official interpretations thereof (collectively, “FATCA”), any agreement (including any intergovernmental agreement) entered into in connection therewith, or any law, regulation or other official guidance enacted in any jurisdiction implementing FATCA or an intergovernmental agreement in respect of FATCA;
 8. any tax, assessment or other governmental charge that is imposed or withheld solely by reason of a change in law, regulation, or administrative or judicial interpretation that becomes effective more than 15 days after the payment becomes due or is duly provided for, whichever occurs later; or
 9. in the case of any combination of items (1) through (8).

Except as specifically provided under this heading “Payment of Additional Amounts,” we will not be required to pay additional amounts in respect of any tax, assessment or other governmental charge.

As used under this heading “Payment of Additional Amounts” and under the heading “Redemption for Tax Reasons,” the term “United States” means the United States of America, any state thereof, and the District of Columbia, and the term “United States Person” means a citizen or individual resident of the United States, a corporation (or other entity that is treated as a corporation for U.S. federal income tax purposes) that is created or organized in or under the laws of the United States, or any State thereof or the District of Columbia, an estate whose income is subject to U.S. federal income tax regardless of its source, or a trust (i) if a U.S. court can exercise primary supervision over the trust’s administration and one or more U.S. persons are authorized to control all substantial decisions of the trust, or (ii) that validly elects to be treated as a U.S. person for U.S. federal income tax purposes.

Discharge, Defeasance and Covenant Defeasance

Discharge. We may discharge some obligations to holders of the notes that either have become due and payable or will become due and payable within one year, or scheduled for redemption within one year, by irrevocably depositing with the trustee, in trust, funds in euro in an amount sufficient to pay the notes, including any premium and interest.

Full Defeasance. We can, under particular circumstances, effect a full defeasance of the holder’s notes. By this we mean we can legally release ourselves from any payment or other obligations on the notes if we put in place the following arrangements to repay the holder:

- We must deposit in trust for the holder’s benefit and the benefit of all other direct holders of the notes a combination of money and U.S. government or U.S. government agency notes or bonds that will generate enough cash to make interest, principal and any other payments on the notes on the due date.
- We must deliver to the trustee a legal opinion confirming that the holders of outstanding notes will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to U.S. federal income tax on the same amount and in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred, based on the fact that (i) the Company has received from, or there has been published by, the Internal Revenue Service a ruling (which ruling may be, but need not be, issued with respect to the Company) or (ii) since the date of the Indenture, there has been a change in the applicable U.S. federal income tax law.

If we did accomplish full defeasance, the holder would have to rely solely on the trust deposit for repayment on the notes. You could not look to us for repayment in the unlikely event of any shortfall. Conversely, the trust deposit would most likely be protected from claims of our lenders and other creditors if we ever become bankrupt or insolvent.

Covenant Defeasance. Under current federal tax law, we can make the same type of deposit described above and be released from some of the restrictive covenants in the notes. This is called “covenant defeasance.” In that event, the holder would lose the protection of those restrictive covenants but would gain the protection of having money and securities set aside in trust to repay the notes and the holder would be released from any subordination provisions. In order to achieve covenant defeasance, we must do the following:

- We must deposit in trust for the holder’s benefit and the benefit of all other direct holders of the notes a combination of money and U.S. government or U.S. government agency notes or bonds that will generate enough cash to make interest, principal and any other payments on the notes on their due date.

- We must deliver to the trustee a legal opinion confirming that under current federal income tax law we may make the above deposit without causing the holder to be taxed on the notes any differently than if we did not make the deposit and just repaid the notes ourselves.

If we accomplish covenant defeasance, certain covenants contained in the Indenture and the notes would no longer apply. If we accomplish covenant defeasance, the holder can still look to us for repayment of the notes if there were a shortfall in the trust deposit. If one of the remaining events of default occurs, for example, our bankruptcy, and the notes become immediately due and payable, there may be a shortfall. Depending on the event causing the default, the holder may not be able to obtain payment of the shortfall.

Listing of Notes

The notes are listed on the NYSE under the symbol “IFF 24.”

Concerning the Trustee, Paying Agent, Transfer Agent and Registrar

The trustee with respect to the notes is U.S. Bank National Association. Elavon Financial Services Limited acts as the paying agent, transfer agent and registrar with respect to the notes.

LIST OF SUBSIDIARIES OF INTERNATIONAL FLAVORS & FRAGRANCES INC.

(the "Company")

Name of Entity	Jurisdiction
International Flavors & Fragrances S.R.L.	Argentina
Bush Boake Allen Australia Pty Ltd	Australia
IFF Australia Holdings Pty Ltd	Australia
International Flavours & Fragrances (Australia) Pty Ltd	Australia
Lucas Meyer Cosmetics Australia Pty Ltd	Australia
Southern Cross Botanicals Pty Ltd	Australia
Enzymotec Australia PTY LTD	Australia
Taura Natural Ingredients (Australia) Pty Limited	Australia
Taura Natural Ingredients Holdings Pty Limited	Australia
Frutarom GmbH	Austria
Frutarom Savory Solutions Austria GmbH	Austria
world wide WIBERG GmbH	Austria
PTI-BEL TUE	Belarus
Frutarom Belgium N.V.	Belgium
Taura Natural Ingredients NV	Belgium
TNI Investments NV	Belgium
IFF Essências e Fragrâncias Ltda.	Brazil
Bush Boake Allen do Brasil Indústria e Comércio Ltda.	Brazil
Bremil Industria e Comercio de Ingredientes Alimenticos Ltda.	Brazil
Bremil S/A Industria De Produtos Alimenticos ⁽¹⁾	Brazil
Envoltec Indústria de Embalagens Ltda.	Brazil
Frutarom do Brasil GRU Indsutria e Conercio Ltad (formely Citromax Essências Ltda)	Brazil
Frutarom Do Brazil Industria E Comercio Ltda.	Brazil
Nardi Armoas Ltda.	Brazil
Sabormax Indústria de Alimentos e Representação Ltda.	Brazil
SDFLC Brasil Industria E Comercio Ltda ⁽²⁾	Brazil
Fragrance Resources Asia Pacific Ltd.	British Virgin Islands
IFF (BVI) Limited	British Virgin Islands
International Flavors & Fragrances (Canada) Ltd.	Canada
Lucas Meyer Cosmetics Canada Inc.	Canada
Les Laboratories Bio ForeXtra Inc.	Canada
David Michael & Company (Canada) 1986 Ltd.	Canada
Les Ingrédients Alimentaires BSA Inc.	Canada
1456111 Ontario Limited	Canada
Distribution Dan-Hel Inc. ⁽³⁾	Canada
Via Viateur Inc. ⁽⁴⁾	Canada
Wiberg Canada Inc.	Canada
Wiberg Corporation Inc.	Canada
Bush Boake Allen Chile S.A.	Chile
IFF Sabores y Fragancias de Chile Ltda.	Chile
International Flavors & Fragrances I.F.F. (Chile) Limitada	Chile
Frutarom Chile S.A. (former name: Montana Chile S.A.)	Chile

International Flavors & Fragrances (Hangzhou) Co., Ltd. ⁽⁵⁾	China
IFF Flavors & Fragrances (Hangzhou) Trading Co., Ltd.	China
International Flavors & Fragrances (Zhejiang) Co., Ltd.	China
International Flavors & Fragrances (China) Ltd.	China
International Flavors & Fragrances (Zhangjiagang) Co., Ltd.	China
Fragrance Resources (Shanghai) Co. Ltd.	China
IFF Bio-Technology (Nanjing) Co., Ltd.	China
Fangchen International Trading Ltd.	China
Frutarom Flavors (Kushan) Co Ltd.	China
Frutarom F&F Trading (Shanghai) Co.	China
Frutarom Flavors and ingredients (shanghai) Co., Ltd.	China
Inventive Food Technology (ZQ) Ltd.	China
Pucheng Yongfang Fragrance Technology Co., Ltd. ⁽⁶⁾	China
International Flavors and Fragrances Colombia S.A.S.	Colombia
Frutarom Flavor and Fragrance Costa Rica Sociedad de Responsabilidad Limitada	Costa Rica
Alpris Ltd.	Cyprus
Vantodio Holdings Limited	Cyprus
Frutarom Czech Republic S.r.o	Czech Republic
Frutarom Nordic A/S Flachsmann Scandinavia A/S Aksel Holm-Essensfabrik A / S	Denmark
FYMSA del Caribe, S.R.L. ⁽⁷⁾	Dominican Republic
MISR Company for Aromatic products (S.A.E.)	Egypt
A. Boake, Roberts And Company (Holding), Limited	England
International Flavours & Fragrances (CIL) Limited	England
Bush Boake Allen Enterprises Limited	England
Bush Boake Allen Limited	England
Bush Boake Allen (Pension Trustees) Limited	England
Bush Boake Allen Pension Investments Limited	England
Bush Boake Allen Holdings (U.K.) Limited	England
International Flavours & Fragrances (GB) Holdings Limited	England
International Flavours & Fragrances I.F.F. (Great Britain) Limited	England
International Flavours & Fragrances (Pension Trustees) Limited	England
Dandy Lions Limited	England
Frutarom (UK) Holdings Limited	England
Frutarom (UK) Ltd.	England
Frutarom UK Investments Limited	England
Hagelin Flv (UK) Ltd.	England
Redbrook (UK) Limited	England
Savoury Flavours (Holding) Limited	England
Savoury Flavours Ltd.	England
Unique Ingredients Limited	England
Aromco Ltd.	England
Flavors and Essences UK Limited	England
FoodBlenders Limited	England
Frutarom - Etol (UK) Limited	England
International Flavors & Fragrances IFF (France) SAS	France
International Flavors & Fragrances France Holding I SAS	France

International Flavors & Fragrances France Holding II SAS	France
International Flavors & Fragrances France Holding III SAS	France
Lucas Meyer Cosmetics	France
Institut Européen de Biologie Cellulaire	France
David Michael Europe S.A.S.	France
Fragrance Resources SAS	France
Frutarom France S.A.R.L	France
Rene Laurent SAS	France
International Flavors & Fragrances IFF (Deutschland) GmbH	Germany
Leagel GmbH	Germany
IFF Fragrance GmbH	Germany
Dr. Bruno Stellmach Verwaltungs-GmbH	Germany
extrakt Chemie Dr. Bruno Stellmach GmbH & Co. KG	Germany
Frutarom Germany GmbH	Germany
Frutarom Germany GMP GmbH	Germany
Frutarom Production GmbH	Germany
Frutarom Savory Solutions Germany GmbH	Germany
Aroma S.A.	Guatemala
Hexachem, Sociedad Anónima	Guatemala
Manseg S.A.	Guatemala
International Flavors & Fragrances (Hong Kong) Limited	Hong Kong
Frutarom (Asia Pacific) Limited	Hong Kong
Inventive Technology Ltd.	Hong Kong
Prowin International Ltd.	Hong Kong
VAYA PHARMA HONKG LTD	Hong Kong
International Flavors & Fragrances I.F.F. (Hungary) Kft	Hungary
IFF Hungary Global Kft	Hungary
International Flavours & Fragrances India Private Limited ⁽⁸⁾	India
BSA India Food Ingr. P. Ltd.	India
Frutarom Flavours (India) Private Limited ⁽⁹⁾	India
Sonarome Private Limited ⁽¹⁰⁾	India
P.T. Essence Indonesia	Indonesia
IFF Capital Services	Ireland
Irish Flavours and Fragrances Limited	Ireland
Aromatics Holdings Limited	Ireland
International Flavors & Fragrances Irish Acquisition Company Limited	Ireland
Redbrook Blentech Limited	Ireland
Redbrook Ingredient Services Limited	Ireland
International Flavors and Fragrances Ingredients Ltd	Israel
BKF Vision Ltd	Israel
K-Vision Consulting and Investments Ltd	Israel
M.P. Equity Holdings Ltd	Israel
International Flavors and Fragrances I.F.F. (Israel) Ltd.	Israel
Frutarom Global Ltd.	Israel
Frutarom Industries Ltd.	Israel
Frutarom Ltd.	Israel

Nutra-Lease Ltd. ⁽¹¹⁾	Israel
Algalo Industries Ltd. ⁽¹²⁾	Israel
Frutarom Trade & Marketing (1990) Ltd.	Israel
International Flavors e Fragrances IFF (Italia) S.r.l.	Italy
Frutarom Italy S.r.l	Italy
WIBERG Italia S.r.l.	Italy
International Flavors & Fragrances (Japan) Ltd.	Japan
PTI Astana LLC	Kazakhstan
Frutarom Kenya Limited	Kenya
IFF (Korea) Inc.	Korea
Frutarom Finance EUR AG	Lichtenstein
International Flavors & Fragrances (Luxembourg) S.à r.l.	Luxembourg
International Flavors & Fragrances Ardenne S.à r.l.	Luxembourg
Etol Skopje DRUŠTVO ZA TRGOVIJA ETOL UVOZ-IZVOZ DOOEL	Macedonia
Ingrediants dooel Skopje	Macedonia
International Flavors & Fragrances (Malaysia) Sdn. Bhd.	Malaysia
International Flavours & Fragrances (Mauritius) Ltd	Mauritius
Bush Boake Allen Controladora, S.A. de C.V.	Mexico
IFF Mexico Manufactura, S.A. de C.V.	Mexico
International Flavors & Fragrances (Mexico), S. de R.L. de C.V.	Mexico
Frutarom Flavors Mexico S.A. de C.V.	Mexico
Frutarom Mexico S.A. ⁽¹³⁾	Mexico
Proveedores de Ingeniería Alimentaria, S.A. de C.V. ("PIASA") ⁽¹⁴⁾	Mexico
Representaciones FYMSA, S.A. de C.V (FYMSA)	Mexico
PTI-MOL LLC	Moldova
ERELEM	Morocco
International Flavors & Fragrances (Myanmar) Limited	Myanmar
Bush Boake Allen Benelux B.V.	Netherlands
International Flavors & Fragrances (Nederland) Holding B.V.	Netherlands
International Flavors & Fragrances I.F.F. (Nederland) B.V.	Netherlands
Daivd Michael Netherlands B.V.	Netherlands
Frutarom Netherlands B.V.	Netherlands
Taura Natural Ingredients Ltd.	New Zealand
International Flavours & Fragrances (NZ) Limited	New Zealand
Bush Boake Allen (New Zealand) Limited	New Zealand
IFF West Africa Limited	Nigeria
Frutarom Nigeria Limited	Nigeria
Frutarom Norway A.S	Norway
Frutarom Perú S.A. (Montana Food activity)	Peru
International Flavors & Fragrances (Philippines), Inc.	Philippines
International Flavors & Fragrances (Poland) Sp. z o.o.	Poland
<u>Amco SP Z.O.O</u>	Poland
Frutarom Polska Sp. Z o.o. (Former name: Etol Polska SP.z.o.o.)	Poland
Chemical Process Materials and Equipment S.A.	Republic of Panama
International Aroma Group	Republic of Panama
Mark Services Holdings Inc.	Republic of Panama

Frutarom (Marketing) S.R.L.	Romania
Frutarom Etol RO SRL	Romania
International Flavors & Fragrances I.F.F. (Rus)	Russia
PTI Group of Companies LLC (GK PTI)	Russia
"Frutarom" Ltd. ИП «Фрутаром» (Frutarom Russia Ltd.)	Russia
ETOL-RUS, Ltd.	Russia
OOO WIBERG Rus	Russia
Platinum Absolut LLC	Russia
PTI Center LLC	Russia
PTI-NN LLC	Russia
Tekhnomol Soya Products LLC	Russia
Etol JVE d.o.o.	Serbia
Leagel S.r.l. ⁽¹⁵⁾	San Marino
International Flavors & Fragrances (Greater Asia) Pte. Ltd	Singapore
Lucas Meyer Cosmetics Asia Pte. Ltd.	Singapore
Enzymotec Singapore Pte. Ltd.	Singapore
Vaya Pharma Pte Ltd. ⁽¹⁶⁾	Singapore
ETOL SK, s.r.o.	Slovakia
Frutarom EtolTovarna arom in eteriènih olj d.o.o.	Slovenia
Etol Proizvodnja Arom D.O.O	Slovenia
VITIVA proizvodnja in storitve d.d. (Short name: VITIVA d.d.)	Slovenia
International Flavors and Fragrances IFF (South Africa)	South Africa
Frutarom South Africa (Proprietary) Limited ⁽¹⁷⁾	South Africa
Unique Flavors Proprietary Limited	South Africa
Unique Food Solutions Proprietary Limited	South Africa
International Flavors & Fragrances I.F.F. (España), S.A.	Spain
IFF Latin American Holdings (España), S.L.	Spain
IFF Benicarló, S.L.	Spain
Frutarom Spain, S.L.	Spain
Ingredientes Naturales Seleccionados, S.L.	Spain
Nutrafur S.A	Spain
Speximo AB	Sweden
International Flavors & Fragrances I.F.F. (Norden) AB	Sweden
Advanced Lipid AB ⁽¹⁸⁾	Sweden
Frutarom Savory Solutions Switzerland AG	Switzerland
Frutarom Switzerland Finance GBP AG	Switzerland
Frutarom Switzerland Ltd.	Switzerland
Frutarom Switzerland Finance CHF AG	Switzerland
Frutarom Switzerland Finance MXN AG	Switzerland
Frutarom Switzerland Finance USD AG	Switzerland
International Flavours & Fragrances (Thailand) Limited	Thailand
The Mighty Company Limited	Thailand
IFF Aroma Esans Sanayi Ve Ticaret Anonim Şirketi	Turkey
IFF Turkey Aroma Ve Esans Ürünleri Satış Ticaret Anonim Şirketi	Turkey
Etol Aroma Ve Baharat Gıda Ürünleri San.Ve Tic.a.º.	Turkey
Frutarom Gıda Ürünleri Sanayi Ve Ticaret Limited Şirketi	Turkey

Wiberg Baharat San.Tic.A.S	Turkey
Frutarom Savory Solutions Ukraine	Ukraine
Frutarom EtoI Ukraine LLC.	Ukraine
PARMA FA	Ukraine
PTI-Ukraine LLC	Ukraine
PTI CA LLC	Uzbekistan
International Flavors & Fragrances (Middle East) FZ-LLC	United Arab Emirates
International Flavors & Fragrances (Vietnam) Limited Liability Company	Vietnam
Western Flavors Fragrances Production Joint Stock Company ⁽¹⁹⁾	Vietnam
Bush Boake Allen Zimbabwe (Private) Limited	Zimbabwe
International Flavors & Fragrances (Zimbabwe) (Private) Ltd.	Zimbabwe
Asian Investments, Inc.	United States
Tastepoint Inc.	United States
IFF Augusta Holdings LLC	United States
IFF Chemical Holdings Inc.	United States
IFF Delaware Holdings, LLC	United States
IFF Worldwide LLC	United States
International Flavors & Fragrances (Caribe) Inc.	United States
International Flavors & Fragrances Holdings, LLC	United States
The Additive Advantage, LLC	United States
iDrug Delivery, Inc.(Delaware) ⁽²⁰⁾	United States
IFF International Inc.	United States
van Ameringen-Haebler, Inc.	United States
Bush Boake Allen Inc.	United States
Columbia PhytoTechnology LLC	United States
Flavor Systems International, Inc.	United States
Frutarom USA Holding, Inc.	United States
Frutarom USA Inc.	United States
International Frutarom Corporation	United States
Taura Natural Ingredients (North America) Inc.	United States
CitraSource Holdings, L.L.C.	United States
Crestmont Investment Co.	United States
Eden Essentials, Inc.	United States
FYMSA Real Estate LLC	United States
Grow Company Inc.	United States
PIASA USA	United States
The Foote & Jenks Corporation	United States
UFC America Inc.	United States
W.W. Holdings Inc.	United States
Wiberg Corporation of California	United States
Enzymotec USA Inc.	United States
Vaya Pharma Inc.	United States

The companies listed above constitute all subsidiaries of the Company as of December 31, 2019. Except as otherwise indicated, such subsidiaries are wholly owned, directly or indirectly, by the Company.

- (1) 51% of the voting stock of BREMIL S/A INDÚSTRIA DE PRODUTOS ALIMENTÍCIOS is owned indirectly by the Company.
- (2) 80% of the voting stock of SDFLC Brasil Industria E Comercio Ltda is owned indirectly by the Company.
- (3) 50% of the voting stock of Distribution Dan-Hel Inc. is owned indirectly by the Company.
- (4) 33.3% of the voting stock of Via Viateur Inc is owned indirectly by the Company.
- (5) 95% of the voting stock of International Flavors & Fragrances (Hangzhou) Co., Ltd. is owned indirectly by the Company.
- (6) 62.3% of the voting stock of Pucheng Yongfang Fragrance Technology Co., Ltd. is owned indirectly by the Company.
- (7) 99.8% of the voting stock of FYMSA del Caribe, S.R.L is owned indirectly by the Company.
- (8) 93.36% of the voting stock of International Flavours & Fragrances India Private Limited is owned indirectly by the Company.
- (9) 99.99% of the voting stock of Frutarom Flavours (India) Private Limited is owned indirectly by the Company.
- (10) 70% of the voting stock of Sonarome Private Limited is owned indirectly by the Company.
- (11) 56.89% of the voting stock of Nutra-Lease Ltd. is owned indirectly by the Company.
- (12) 50% of the voting stock of Algalo Industries Ltd. is owned indirectly by the Company.
- (13) 98% of the voting stock of Frutarom Mexico S.A. is owned indirectly by the Company.
- (14) 75% of the voting stock of Proveedores de Ingeniería Alimentaria, S.A. de C.V. ("PIASA") is owned indirectly by the Company.
- (15) 70% of the voting stock of Leagel S.r.l. is owned indirectly by the Company.
- (16) 80% of the voting stock of VAYA PHARMA PTE LTD is owned indirectly by the Company.
- (17) 95% of the voting stock of Frutarom South Africa (Proprietary) Limited is owned indirectly by the Company.
- (18) 50% of the voting stock of Advanced Lipid AB is owned indirectly by the Company.
- (19) 60% of the voting stock of Western Flavors Fragrances Production Joint Stock Company is owned indirectly by the Company.
- (20) 65% of the voting stock of iDrug Delivery, Inc. is owned indirectly by the Company.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-231270) and Form S-8 (No. 333-126421, No. 333-120158, No. 333-102825, No. 333-61072, No. 333-51436, No. 333-50752, No. 033-54423, No. 333-171297, and No. 333-203902) of International Flavors & Fragrances Inc. of our report dated March 3, 2020 relating to the financial statements and financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

New York, New York

March 3, 2020

CERTIFICATION

I, Andreas Fibig, certify that:

1. I have reviewed this Annual Report on Form 10-K of International Flavors & Fragrances Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 3, 2020

By: /s/ Andreas Fibig
 Name: Andreas Fibig
 Title: Chairman of the Board and Chief Executive Officer

CERTIFICATION

I, Rustom Jilla, certify that:

1. I have reviewed this Annual Report on Form 10-K of International Flavors & Fragrances Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 3, 2020

By: /s/ Rustom Jilla
 Name: Rustom Jilla
 Title: Executive Vice President and Chief Financial Officer

**CERTIFICATION OF CEO AND CFO PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of International Flavors & Fragrances Inc. (the "Company") for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Andreas Fibig, as Chief Executive Officer of the Company, and Rustom Jilla, as Chief Financial Officer, each hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his knowledge:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 3, 2020

By: /s/ Andreas Fibig
Name: Andreas Fibig
Title: Chairman of the Board and Chief Executive Officer

By: /s/ Rustom Jilla
Name: Rustom Jilla
Title: Executive Vice President and Chief Financial Officer