

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 8-K

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

Date of report (Date of earliest event reported) June 18, 2020

INTERNATIONAL FLAVORS & FRAGRANCES INC.
(Exact Name of Registrant as Specified in Charter)

New York1-485813-1432060
**(State or Other Jurisdiction (Commission (I.R.S. Employer
of Incorporation) File Number) Identification No.)**

521 West 57th Street, New York, New York 10019
(Address of Principal Executive Offices) (Zip Code)

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

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value 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
1.75% Senior Notes due 2024	IFF 24	New York Stock Exchange
1.800% Senior Notes due 2026	IFF 26	New York Stock Exchange

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

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

Item 8.01. Other Events

International Flavors and Fragrances Inc. (“IFF,” “the Company,” “we,” “us” and “our”) is filing this Current Report on Form 8-K principally to recast certain previously reported amounts to conform with the segment reporting changes made in connection with the realignment of our organizational structure, with respect to the financial information contained in our Annual Report on Form 10-K for the year ended December 31, 2019 (“2019 Form 10-K”). In connection with changes arising from the aforementioned segment realignment, certain other minor adjustments have been made to corporate cost allocations among reportable segments and global expenses.

During the first quarter of 2020, the Company reorganized its reporting structure and combined substantially all of the components of the former Frutarom reportable operating segment into the former Taste reportable operating segment. As a result of the reorganization, the Company is now organized into two reportable operating segments, Taste and Scent. The Company’s new reporting segments are aligned with its strategic priorities and reflect how management now reviews and evaluates operating performance. Starting with the Quarterly Report on Form 10-Q for the quarter ending March 31, 2020, the Company’s new reporting segments are presented as described above.

IFF has recast the following portions of the 2019 Form 10-K as they would have appeared when IFF published its 2019 Form 10-K if IFF had changed its reportable segments prior to the first quarter 2020:

- Item 1: Business (up to and including Our Product Offerings)
- Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations
- Item 15(a)(1): Financial Statements

This Form 8-K is being filed solely to recast certain previously reported segment reporting financial information and revise certain related disclosures contained in the 2019 Form 10-K to reflect organizational changes implemented in the first quarter of 2020, and certain other minor adjustments to corporate cost allocations among reportable segments and global expenses. The information contained in this Form 8-K is not an amendment to, or a restatement of, the 2019 Form 10-K.

This Form 8-K does not reflect events occurring after we filed our 2019 Form 10-K and does not modify or update the disclosures therein in any way, other than to illustrate the changes as described above. Therefore, this Form 8-K should be read in conjunction with the 2019 Form 10-K. For developments subsequent to the filing of the 2019 Form 10-K, refer to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 and our subsequent current reports on Form 8-K and other filings with the SEC. In the future, references to the Company’s historical financial information are expected to reflect the segment changes described above.

Item 9.01. Financial Statements and Exhibits

(d) Exhibits

<u>Number</u>	<u>Description</u>
23	Consent of PricewaterhouseCoopers LLP.
99.1	Selected updates to International Flavors and Fragrances Inc.’s Annual Report on Form 10-K for the year ended December 31, 2019, as filed with the Securities and Exchange Commission on March 3, 2020, reflecting segment reporting changes
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extensions Schema
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
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

INTERNATIONAL FLAVORS & FRAGRANCES INC.

By: /s/ Rustom Jilla

Name: Rustom Jilla

Title: Executive Vice President and Chief Financial Officer

Dated: June 18, 2020

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. 033-54423, No. 333-61072, No. 333-120158, No. 333-126421, and No. 333-203902) of International Flavors & Fragrances Inc. of our report dated March 3, 2020, except with respect to our opinion on the consolidated financial statements insofar as it relates to the effects of the change in the composition of reportable segments discussed in Note 15, as to which the date is June 18, 2020, relating to the financial statements and financial statement schedule and the effectiveness of internal control over financial reporting of International Flavors & Fragrances Inc., which appears in this Current Report on Form 8-K.

/s/ PricewaterhouseCoopers LLP

New York, New York

June 18, 2020

**INTERNATIONAL FLAVORS & FRAGRANCES INC.
EXPLANATORY NOTE AND REVISED SECTION TABLE OF CONTENTS**

International Flavors & Fragrances Inc. (the “Registrant,” “IFF,” “the Company,” “we,” “us” and “our”) is filing this exhibit (the “Exhibit”) to reflect changes to the presentation of the Company’s financial information as set forth in the Company’s Annual Report on Form 10-K for the year ended December 31, 2019 (“2019 Form 10-K”), as filed with the Securities and Exchange Commission (“SEC”) on March 3, 2020. In the first quarter 2020, we changed our reportable segments as part of the Company’s integration of its acquisition of Frutarom Industries Ltd (“Frutarom”). IFF now operates in the following two reportable segments: Taste and Scent. Historically, we operated in three reportable segments: Taste, Scent and Frutarom. We have moved primarily all of the Frutarom segment to the Taste segment, with the exception of three entities which were moved to the Scent segment.

This Exhibit is being filed principally to recast certain previously reported amounts in the portions of the 2019 Form 10-K included herein to conform with the segment reporting changes made in connection with the realignment of our organizational structure implemented during the first quarter of 2020 and certain other minor adjustments to corporate cost allocations among reportable segments and global expenses, as they would have appeared when IFF publishes its 2019 Form 10-K if IFF had changed its reportable segments prior to the first quarter of 2020. No other changes have been made to the 2019 Form 10-K.

This Exhibit does not reflect events that may have occurred to the Company subsequent to the original filing date, and does not modify or update in any way the disclosures made in the 2019 Form 10-K other than as required to reflect the changes described above. The information contained in this exhibit is not an amendment to, or a restatement of, the 2019 Form 10-K. Therefore, this Exhibit should be read in conjunction with the 2019 Form 10-K. For developments subsequent to the filing of the 2019 Form 10-K, refer to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 and our subsequent current reports on Form 8-K and other filings with the SEC.

	PAGE
PART I	
ITEM 1. <u>Business (Up to and including Our Product Offerings)</u>	<u>3</u>
PART II	
ITEM 7. <u>Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>5</u>
PART IV	
ITEM 15. (a)(1) <u>Financial Statements</u>	<u>30</u>

PART I

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.

Until the end of our fiscal year 2019, 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. Our historical results of operations have been recast to retrospectively reflect these changes in accordance with US GAAP.

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 previously included in the legacy Frutarom businesses. As noted above, beginning in fiscal year 2020, our business segments have realigned such that nearly all of the Frutarom business segment was combined with our Taste segment.

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.

PART II

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 document reflect the Taste and Scent business segments as adjusted for 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

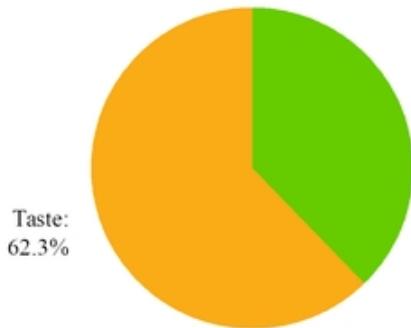
Sales in 2019 increased 29% on a reported basis and 32% on a currency neutral basis (which excludes the effects of changes in currency), with the effects of the Frutarom acquisition (in the fourth quarter of 2018) contributing approximately 28% to reported growth rates and 29% to currency neutral growth rates. Taste reported sales grew 53% year-over year and currency neutral sales grew 56%. This increase was primarily driven by an increase in sales related to the Frutarom acquisition of \$1.1 billion in 2019 compared to 2018, which was a 53% increase in net sales on a reported and 54% on a currency neutral basis. Scent achieved sales growth of 3% on a reported basis and 5% 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.

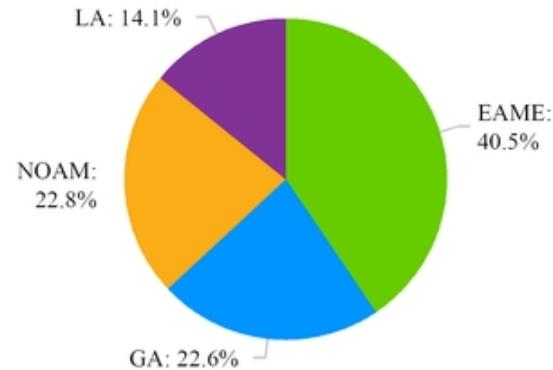
Exchange rate variations had an unfavorable impact on net sales for 2019 of 3%. The effect of exchange rates can vary by business and region, depending upon the mix of sales priced in U.S. dollars as compared to other currencies.

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.

Sales by Business Unit



Sales by Destination



Gross Margin

Gross margin decreased 120 basis points ("bps") year-over-year, driven principally by lower margins in the acquired Frutarom business 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

<i>(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)</i>	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)
<i>Adjusted operating margin⁽¹⁾</i>	15.4%	17.0%	18.2%	(160.0)	(117.2)
Effective tax rate	17.4%	24.1%	44.9%	NMF	NMF
<u>Segment net sales</u>					
Taste	\$ 3,200,520	\$ 2,091,635	\$ 1,632,166	53.0 %	28.2 %
Scent	1,939,564	1,885,904	1,766,553	2.8 %	6.8 %
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	53%	56%
Scent	3%	5%
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 increased 53% on a reported basis and 56% on a currency neutral basis versus the prior year period. This increase was primarily driven by an increase in sales related to the Frutarom acquisition of \$1.1 billion in 2019 compared to 2018, which was a 53% increase in net sales on a reported and 54% on a currency neutral basis.

Within legacy IFF taste, 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 3% on a reported basis and 5% 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.

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 the acquired Frutarom business 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 the acquired Frutarom business 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.

(DOLLARS IN THOUSANDS)	For the Year Ended December 31,	
	2019	2018
Segment profit:		
Taste	\$ 482,394	\$ 419,264
Scent	349,445	325,901
Global Expenses	(38,759)	(67,799)
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	\$ 665,270	\$ 583,882
Profit margin		
Taste	15.1%	20.0%
Scent	18.0%	17.3%
Consolidated	12.9%	14.7%

Taste Business Unit

Taste segment profit increased \$63.1 million to \$482.4 million (15.1% of segment sales) in 2019 from \$419.3 million (20.0% of segment sales) in the comparable 2018 period. Included in the increase in segment profit was \$74.3 million related to the acquired Frutarom business, as well as the benefit of cost savings and productivity initiatives, partially offset by higher raw material costs, and unfavorable manufacturing variances.

Scent Business Unit

Scent segment profit increased \$23.5 million to \$349.4 million (18.0% of segment sales) in 2019, compared to \$325.9 million (17.3% 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.

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 \$38.8 million compared to \$67.8 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

Frutarom's operating results have been included in our operating results from October 4, 2018.

Sales

Sales for 2018 totaled \$4.0 billion, an increase of 17% from the prior year on a reported and 15% on a currency neutral basis. Sales growth reflected new win performance (net of losses) and favorable price to input costs in both Taste and Scent. On a reported and currency neutral basis, the effect of the acquisition of Frutarom was approximately 11% and 10%, respectively, to net sales amounts.

Sales performance by segment was as follows:

	% Change in Sales — 2018 vs. 2017	
	Reported	Currency Neutral ⁽¹⁾
Taste	28%	27%
Scent	7%	5%
Total	17%	15%

(1) Currency neutral sales growth is calculated by translating prior year sales at the exchange rates for the corresponding 2018 period.

Taste

Taste sales in 2018 increased 28% on a reported basis and 27% on a currency neutral basis versus the prior year period. This increase was primarily driven by an increase in sales related to the Frutarom acquisition in the fourth quarter of 2018, contributing \$354 million in sales, which was a 22% increase in net sales on a reported and currency neutral basis.

Within legacy IFF Taste, overall growth was primarily driven by new win performance (net of losses) and price increases (principally due to increases in raw material input costs). The legacy IFF Taste business delivered currency neutral growth across all regions. Sales growth in the legacy IFF Taste business was led by NOAM, which were primarily driven by new wins and price increases (principally due to increases in raw material input costs), and followed by EAME. GA and LA sales growth was primarily driven by new wins.

Scent

Scent sales in 2018 increased 7% on a reported basis and 5% on a currency neutral basis. Year-over-year, 2018 sales growth reflected new win performance (net of losses) and price increases (principally due to increases in raw material input costs), which were partially offset by volume reductions on existing business.

Sales growth in the Scent business unit was led by Ingredients, which were primarily driven by price increases (principally due to increases in raw material input costs), followed by Fragrance Compounds, primarily driven by new wins partially offset by volume reductions on existing business.

Cost of Goods Sold

Cost of goods sold, as a percentage of sales, increased 102 bps, to 57.7% in 2018 compared to 56.7% in 2017. Included in cost of goods sold was \$23.6 million of Frutarom acquisition related inventory "step-up" costs, \$1.7 million of costs associated with operational improvement initiatives, and \$0.1 million of integration related costs, partially offset by \$7.1 million related to an FDA mandated product recall, in 2018. For 2017, included in costs of goods sold was \$15.9 million of acquisition-related inventory "step-up" costs, \$11.0 million related to an FDA mandated product recall, \$1.8 million of costs associated with operational improvement initiatives, and \$0.5 million of integration related costs.

Research and Development (R&D)

Overall R&D expenses, as a percentage of sales, decreased to 7.8% in 2018 compared to 8.7% in 2017. The decrease in 2018 was principally driven by the effect of the acquisition of Frutarom which has a lower R&D spend as a percent of sales.

Selling and Administrative (S&A)

S&A expenses increased \$137.3 million to \$707.5 million, or 17.8% as a percentage of sales, in 2018 compared to \$570.1 million, or 16.8% as a percentage of sales, in 2017. Included in 2018 were Frutarom acquisition related costs of \$66.1 million and integration related costs of \$6.1 million, partially offset by non-Frutarom acquisition related costs of \$1.3 million, compared to commercial real estate tax assessment charges of \$5.3 million, acquisition and integration related costs of \$4.5 million and \$3.3 million, respectively, UK pension settlement charge of \$1.9 million and net legal charges/credits, principally related to a litigation accrual of \$1.0 million in 2017. Excluding these costs, adjusted S&A expense increased by \$82.5 million, but decreased to 16.0% of sales in 2018 compared to 16.3% of sales in 2017. The improved leverage is principally due to a decline in personnel related costs and the impact of our acquisition of Frutarom.

Restructuring and Other Charges

Restructuring and other charges primarily consist of separation costs for employees, including severance, outplacement and other benefit costs.

<i>(DOLLARS IN THOUSANDS)</i>	For the Year Ended December 31,	
	2018	2017
Taste	\$ 1,646	\$ 4,505
Scent	3,433	13,077
Global	—	2,129
Total	<u>\$ 5,079</u>	<u>\$ 19,711</u>

2017 Productivity Program

On February 15, 2017, the Company announced that it was adopting a multi-year productivity program designed to improve overall financial performance, provide flexibility to invest in growth opportunities and drive long-term value creation. In connection with this program, we expect to optimize our global footprint and simplify the Company's organizational structures globally.

The Company recorded \$3.9 million and \$20.6 million of charges related to personnel-related costs in 2018 and 2017, respectively, with no further anticipated personnel-related and other costs after the first quarter of 2019. The Company made payments of \$7.3 million and \$14.0 million related to severance in 2018 and 2017, respectively. The overall charges were split approximately evenly between Taste and Scent. This initiative is expected to result in the reduction of approximately 370 members of the Company's global workforce, including acquired entities, in various parts of the organization.

Amortization of Acquisition-Related Intangibles

Amortization expenses increased to \$75.9 million in 2018 compared to \$34.7 million in 2017. The increase of \$41.2 million is principally due to the acquisition of Frutarom.

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,	
	2018	2017
(DOLLARS IN THOUSANDS)		
Segment profit:		
Taste	\$ 419,264	\$ 358,266
Scent	325,901	314,899
Global Expenses	(67,799)	(54,538)
Operational Improvement Initiatives	(2,169)	(1,802)
Acquisition Related Costs	1,289	(20,389)
Integration Related Costs	(7,188)	(4,179)
Legal Charges/Credits, net	—	(1,000)
Tax Assessment	—	(5,331)
Restructuring and Other Charges, net	(4,086)	(19,711)
Gain on Sale of Assets	1,177	184
FDA Mandated Product Recall	7,125	(11,000)
UK Pension Settlement Charges	—	(2,769)
Frutarom Acquisition Related Costs ⁽¹⁾	(89,632)	—
Operating Profit	\$ 583,882	\$ 552,630
Profit margin		
Taste	20.0%	22.0%
Scent	17.3%	17.8%
Consolidated	14.7%	16.3%

NMF: Not meaningful

(1) Includes \$23.6 million related to amortization of inventory "step-up" costs.

Taste Business Unit

Taste segment profit increased \$61.0 million to \$419.3 million (20.0% of segment sales) in 2018 from \$358.3 million (22.0% of segment sales) in the comparable 2017 period. Included in the increase was \$25.5 million due to the acquisition of Frutarom in the fourth quarter of 2018. The remainder of the increase principally reflected the impact of cost savings and productivity initiatives and the impact of foreign exchange, partially offset by increases in Selling and administrative expenses.

Scent Business Unit

Scent segment profit increased \$11.0 million to \$325.9 million in 2018, compared to \$314.9 million reported in 2017 primarily due to new win performance (net of losses) and price increases (principally due to increases in raw material input costs), which were partially offset by volume reductions on existing business. Segment profit as a percentage of segment sales decreased to 17.3% in 2018 from 17.8% in 2017 primarily due to the impact of unfavorable price versus input costs (including the net impact of the BASF supply chain disruption) and increases in R&D and Selling and administrative expenses, partially offset by new win performance (net of losses).

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 2018, Global expenses were \$67.8 million compared to \$54.5 million during 2017. The increase was principally driven by lower gains from our currency hedging program, offset by reductions in incentive compensation expense.

Interest Expense

In 2018, interest expense increased \$67.2 million to \$132.6 million, compared to \$65.4 million in 2017 primarily driven by \$39.4 million of bridge loan commitment fees and \$7.7 million of accrued, unpaid interest on the repurchased Senior Notes - 2007 and increased interest expense related to the public debt issued in 2018 to finance the acquisition of Frutarom. Average cost of debt was 4.3% for the 2018 period compared to 4.1% in 2017.

Other (Income) Expense, Net

Other income, net, decreased approximately \$14.5 million to \$35.2 million of income in 2018 versus \$49.8 million of income in 2017. The decrease was largely driven by decreases in gains on foreign currency of approximately \$8 million year over year as well as a decrease in pension related other net income.

Loss on extinguishment of debt

Loss on extinguishment of debt was \$38.8 million in the third quarter of 2018. The loss on extinguishment of debt is driven by 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.

Income Taxes

The effective tax rate was 24.1% in 2018 as compared to 44.9% in 2017. The year-over-year reduction principally relates to lower U.S. tax reform charges in 2018, partially offset by nondeductible Frutarom acquisition costs, an unfavorable mix of earnings, lower loss provisions, and a lower level of reversals of valuation allowances on U.S. state deferred taxes. Excluding \$25.3 million related to the U.S. tax reform, Frutarom acquisition costs of \$28.5 million, FDA mandated product recall costs of \$1.6 million, integration related costs of \$1.4 million, restructuring and other charges, net of \$1.0 million, operational improvement initiative costs of \$0.7 million, gain on sale of assets of \$0.4 million and acquisition related costs of \$0.3 million, the adjusted effective tax rate for 2018 was 18.4%. For 2017, the adjusted tax rate was 20.7% excluding \$139.2 million related to the impact of the U.S. tax reform, legal charges/credits, net of \$0.4 million, acquisition related costs of \$6.5 million, gain on sale of assets of \$0.1 million, operational improvement initiative costs of \$0.5 million, restructuring and other charges, net of \$5.5 million, FDA mandated product recall costs of \$3.9 million, UK pension settlement charge of \$0.5 million, tax assessment of \$1.9 million, and integration related costs of \$1.3 million.

U.S. Tax Reform

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 by, among other things, lowering the corporate income tax rate from a top marginal rate of 35% to a flat 21% and establishing a modified territorial system requiring a mandatory deemed repatriation tax on undistributed earnings of foreign subsidiaries. Beginning in 2018, the Act also requires a minimum tax on certain future earnings generated by foreign subsidiaries while providing for future tax-free repatriation of such earnings through a 100% dividends-received deduction for U.S. federal income tax purposes.

The Tax Act impacted the Company's consolidated results of operations during the 2017 fourth quarter. In particular, the transition to the new territorial tax system required the Company to record a one-time tax or "toll charge" which resulted in a provisional incremental tax expense of \$100.6 million principally related to previously unremitted earnings on non-U.S. subsidiaries. The cash portion of the "toll charge" is payable in installments over 8 years beginning in 2018. In addition, the reduction of the U.S. corporate tax rate resulted in a provisional net deferred tax expense of \$38.6 million related to the remeasurement of net deferred tax assets as a result of the reduction in the corporate income tax rate.

During the first quarter of 2018, the Company recorded an additional charge of \$0.6 million to adjust an accrual related to withholding taxes on planned repatriations. During the second quarter of 2018, the Company paid the first installment of the "toll charge". During the third quarter of 2018, the Company recorded a benefit of \$8.0 million to adjust the provisional "toll charge" required from the transition to the new territorial tax system, and a benefit of \$0.2 million to adjust the remeasurement of net deferred tax assets as a result of U.S. tax reform. During the fourth quarter, the Company completed its final assessment under SAB 118, and recorded an additional charge of \$32.8 million to adjust an accrual related to the U.S. state impact and

foreign withholding taxes on planned repatriations. The charge in the fourth quarter of 2018 is consistent with the Company's need to repatriate funds for debt repayment purposes.

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

- (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>	<i>December 31, 2019</i>
<i>Total debt</i>	\$ 4,382.4
<i>Adjustments:</i>	
<i>Cash and cash equivalents</i>	(606.8)
<i>Net debt</i>	<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:

(DOLLARS IN MILLIONS)	Payments Due by Period					More than 5 Years
	Total	Less than 1 Year	1-3 Years	3-5 Years		
	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 eight reporting units under the Taste and Scent Segments: (1) Flavor Compounds (which includes the Taste reporting unit that was previously included in the former Frutarom segment, as well as Legacy IFF Flavor Compounds), (2) Fragrance Compounds, (3) Fragrance Ingredients, (4) Cosmetic Actives Ingredients, (5) Savory, (6) Natural Product Solutions, (7) Frutarom Fragrance and Fine Ingredients and (8) Inclusions.

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 eight 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 eight reporting units in 2019. Based on the annual impairment test performed at November 30, 2019, the Company determined that the excess of fair values over their respective carrying values ranged above 80% for four reporting units and between 10% and 80% for three reporting units. In the analysis performed for the reporting units, the Savory reporting unit had less than 10% excess fair value over carrying value.

The Savory reporting unit had excess fair value over carrying value of 8.3%. 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 reporting unit as of November 30, 2019:

(DOLLARS IN MILLIONS)	Key Assumptions			Existing Headroom	Resulting Headroom	
	Goodwill	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)%

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:

(DOLLARS IN THOUSANDS)	Sensitivity of Disclosures to Changes in Selected Assumptions			
	25 BP Decrease in Discount Rate		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
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

	Year Ended December 31,	
(DOLLARS IN THOUSANDS)	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)	<u>\$ 2,120,242</u>	<u>\$ 1,700,884</u>

Reconciliation of Selling and Administrative Expenses

	Year Ended December 31,	
(DOLLARS IN THOUSANDS)	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)	<u>\$ 788,886</u>	<u>\$ 636,608</u>

Reconciliation of Operating Profit

	Year Ended December 31,	
<i>(DOLLARS IN THOUSANDS)</i>	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,							
<i>(DOLLARS IN THOUSANDS)</i>	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)
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.

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	31
Consolidated Statement of Income and Comprehensive Income for the years ended December 31, 2019, 2018 and 2017	33
Consolidated Balance Sheet as of December 31, 2019 and 2018	34
Consolidated Statement of Cash Flows for the years ended December 31, 2019, 2018 and 2017	35
Consolidated Statement of Shareholders' Equity for the years ended December 31, 2019, 2018 and 2017	36
Notes to Consolidated Financial Statements	38

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 (not presented herein) appearing on page S-1 of the Company's 2019 Annual Report on Form 10-K (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 (not presented herein) appearing under Item 9A of the Company's 2019 Annual Report on Form 10-K. 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 - Legacy Frutarom Taste, Savory, Natural Product Solutions, Frutarom Fragrance and Fine Ingredients, and Inclusions Reporting Units

As described in Notes 1 and 5 (not presented herein) to the consolidated financial statements appearing under Item 15 of the Company's 2019 annual report on Form 10-K, the Company's consolidated goodwill balance was \$5.5 billion as of January 3, 2020, and the goodwill associated with the Frutarom Segment, which consisted of the Taste, Savory, Natural Product Solutions, Frutarom Fragrance and Fine Ingredients, and Inclusions reporting units (collectively, the "Legacy Frutarom Reporting Units") was \$4.3 billion. As disclosed by management, subsequent to the initial issuance of the January 3, 2020 financial statements, there was a change in reportable segments to move primarily all of the Frutarom segment to the Taste segment, with the exception of three entities that were moved to the Scent segment, which also reduced the reporting units for goodwill impairment assessment purposes from nine to eight, as the legacy IFF Taste and Legacy Frutarom Taste reporting units were combined. 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 Legacy 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 Legacy Frutarom Reporting Units is a critical audit matter are there was significant judgment by management when developing the fair value measurement of the Legacy 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 Legacy 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 Legacy 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, except with respect to our opinion on the consolidated financial statements insofar as it relates to the effects of the change in the composition of reportable segments discussed in Note 15, as to which the date is June 18, 2020

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

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

(DOLLARS IN THOUSANDS EXCEPT PER SHARE AMOUNTS)	Year Ended December 31,		
	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

(DOLLARS IN THOUSANDS)	December 31,	
	2019	2018
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 606,823	\$ 634,897
Restricted cash	17,122	13,625
Receivables:		
Trade	892,625	946,938
Allowance for doubtful accounts	(16,428)	(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

(DOLLARS IN THOUSANDS)	Year Ended December 31,		
	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

(DOLLARS IN THOUSANDS)	Common stock	Capital in excess of par value	Retained earnings	Accumulated other comprehensive 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	<u>\$ 16,066</u>	<u>\$ 3,823,152</u>	<u>\$ 4,117,804</u>	<u>\$ (716,894)</u>	<u>(21,738,838)</u>	<u>\$ (1,022,824)</u>	<u>\$ 12,244</u>	<u>\$ 6,229,548</u>

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:

<i>(DOLLARS IN THOUSANDS)</i>	December 31,	
	2019	2018
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 eight reporting units under the Taste and Scent Segments: (1) Flavor Compounds (which includes the Taste reporting unit that was previously included in the former Frutarom segment, as well as Legacy IFF Flavor Compounds), (2) Fragrance Compounds, (3) Fragrance Ingredients, (4) Cosmetic Actives Ingredients, (5) Savory, (6) Natural Product Solutions, (7) Frutarom Fragrance and Fine Ingredients and (8) Inclusions. 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

The Company adjusted the amount of the allowances for bad debts as of December 31, 2019 to reflect the correct classification of amounts between the allowances for bad debts and Trade Receivables. The adjustment was for \$8.2 million and had the effect of increasing both the allowances for bad debts and Trade Receivables.

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:

<u>(DOLLARS IN THOUSANDS)</u>	Balance at January 1, 2017	Additional Charges (Reversals), Net	Non-Cash Charges	Cash Payments	Balance at December 31, 2017
<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
 <u>(DOLLARS IN THOUSANDS)</u>					
<u>2017 Productivity Program</u>	Balance at January 1, 2018	Additional Charges, Net	Non-Cash Charges	Cash Payments	Balance at December 31, 2018
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
 <u>(DOLLARS IN THOUSANDS)</u>					
<u>2017 Productivity Program</u>	Balance at January 1, 2019	Additional Charges (Reversals), Net	Non-Cash Charges	Cash Payments	Balance at December 31, 2019
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:

<u>(DOLLARS IN THOUSANDS)</u>	December 31,		
	2019	2018	2017
Taste	\$ 10,045	\$ 1,646	\$ 4,505
Scent	12,093	3,433	13,077
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 Taste 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 Taste 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	\$ 2,668,300	

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 former 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. As part of the reorganization that occurred effective January 1, 2020, the Taste reporting unit was combined with the Legacy IFF Flavor Compounds reporting unit, and the former Frutarom operating segment was largely integrated into the Taste operating segment.

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:

(DOLLARS IN THOUSANDS)	December 31,	
	2019	2018
Asset Type		
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:

(DOLLARS IN THOUSANDS)	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	\$ 4,788,988	\$ 4,663,835
Scent	708,608	704,113
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 Taste above primarily represents the final purchase price allocation of the Frutarom acquisition 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 eight reporting units in 2019. Based on the annual impairment test performed at November 30, 2019, the Company determined that the excess of fair values over their respective carrying values ranged above 80% for four reporting units and between 10% and 80% for three reporting units. In the analysis performed for the reporting units, the Savory reporting unit had less than 10% excess fair value over carrying value.

The Savory reporting unit had excess fair value over carrying value of 8.3%. 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 reporting unit 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)%

Other Intangible Assets

Other intangible assets, net consisted of the following amounts:

(DOLLARS IN THOUSANDS)	Asset Type	December 31,	
		2019	2018
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:

(DOLLARS IN THOUSANDS)	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:

(DOLLARS IN THOUSANDS)	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	\$ 319,334	\$ 277,036

Other assets consisted of the following amounts:

(DOLLARS IN THOUSANDS)	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	\$ 608,416	\$ 288,673

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

Other current liabilities consisted of the following amounts:

(DOLLARS IN THOUSANDS)	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	\$ 576,822	\$ 530,508

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:

<u>(DOLLARS IN THOUSANDS)</u>	<u>December 31, 2019</u>
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:

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

Supplemental cash flow information related to leases was as follows:

<u>(DOLLARS IN THOUSANDS)</u>	<u>December 31, 2019</u>
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:

<u>(DOLLARS IN THOUSANDS)</u>	<u>December 31, 2019</u>
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	<u>\$ 291,111</u>

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	<u>\$ 4,456</u>

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	<u>\$ 389,700</u>

Right of use assets by region were as follows:

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

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:

<u>(IN MILLIONS, EXCEPT FAIR VALUE PER TEU)</u>	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	<u>\$ 665.1</u>	<u>\$ 135.1</u>	<u>\$ 800.2</u>

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.

(DOLLARS IN THOUSANDS)	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:

(DOLLARS IN THOUSANDS)	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:

(DOLLARS IN THOUSANDS)	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)	\$ 892,625	\$ 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:

<u>(DOLLARS IN THOUSANDS)</u>	<u>Shares Repurchased</u>	<u>Weighted-Average Price per Share</u>	<u>Dollar Amount Repurchased</u>
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:

<u>(DOLLARS IN THOUSANDS)</u>	<u>December 31,</u>		
	<u>2019</u>	<u>2018</u>	<u>2017</u>
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:

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

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:

<u>Price Range</u>	<u>Number Outstanding (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	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

PRSUs activity was as follows:

(SHARE AMOUNTS IN THOUSANDS)	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	<u>168</u>	<u>\$ 138.96</u>

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:

(SHARE AMOUNTS IN THOUSANDS)	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	<u>95</u>	<u>\$ 126.35</u>

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 two reportable operating segments, Taste and Scent; these segments align with the internal structure used to manage these businesses.

Taste is comprised of a diversified portfolio across flavor compounds, savory solutions, inclusions and nutrition and specialty ingredients. Flavor compounds provide unique flavors that are ultimately used by IFF's customers in savory products, beverages, sweets, and dairy products. 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 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 primarily consist of natural health ingredients, natural food protection, natural colors and 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 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.

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:

	December 31,		
(DOLLARS IN THOUSANDS)	2019	2018	2017
Net sales			
Taste	\$ 3,200,520	\$ 2,091,635	\$ 1,632,166
Scent	1,939,564	1,885,904	1,766,553
Consolidated	<u>\$ 5,140,084</u>	<u>\$ 3,977,539</u>	<u>\$ 3,398,719</u>
(DOLLARS IN THOUSANDS)	December 31,		
Segment assets	2019	2018	
Taste	\$ 10,319,779	\$ 9,677,139	
Scent	2,757,491	2,649,103	
Global assets	210,141	563,153	
Consolidated	<u>\$ 13,287,411</u>	<u>\$ 12,889,395</u>	

<i>(DOLLARS IN THOUSANDS)</i>	December 31,		
	2019	2018	2017
Segment profit:			
Taste	\$ 482,394	\$ 419,264	\$ 358,266
Scent	349,445	325,901	314,899
Global expenses	(38,759)	(67,799)	(54,538)
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	15.1%	20.0%	22.0%
Scent	18.0%	17.3%	17.8%
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:

(DOLLARS IN THOUSANDS)	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:

(DOLLARS IN THOUSANDS)	Capital Expenditures			Depreciation and Amortization		
	2019	2018	2017	2019	2018	2017
Taste	\$ 135,421	\$ 82,712	\$ 68,937	\$ 247,791	\$ 101,224	\$ 53,534
Scent	92,279	82,400	53,089	69,225	65,066	59,951
Global assets	8,278	4,982	6,947	6,314	7,502	4,482
Consolidated	<u>\$ 235,978</u>	<u>\$ 170,094</u>	<u>\$ 128,973</u>	<u>\$ 323,330</u>	<u>\$ 173,792</u>	<u>\$ 117,967</u>

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

<u>(DOLLARS IN THOUSANDS)</u>	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

<u>(DOLLARS IN THOUSANDS)</u>	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.

Change in Reportable Operating Segments

As part of the Company's Frutaron Integration Initiative, the reportable operating segments have been realigned such that beginning in fiscal year 2020 there are two reportable operating segments: Scent and Taste. The financial results presented in this document reflect the Scent and Taste business segments following 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.

<u>(DOLLARS IN THOUSANDS)</u>	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)	<u>\$ (8,604)</u>	<u>\$ 14,458</u>	<u>\$ 56,606</u>	<u>\$ (14,063)</u>

(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	<u>\$ (2,086)</u>	<u>\$ (2,282)</u>	<u>\$ (1,485)</u>
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)	<u>\$ 8,860</u>	<u>\$ (16,042)</u>	

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	Prior service cost (credit) recognition
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:

(DOLLARS IN THOUSANDS)	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:

(DOLLARS IN THOUSANDS)	U.S. Plans		Non-U.S. Plans	
	2019	2018	2019	2018
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	<u>\$ (18,246)</u>	<u>\$ (29,662)</u>	<u>\$ (93,801)</u>	<u>\$ (61,153)</u>

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

<u>(DOLLARS IN THOUSANDS)</u>	U.S. Plans		Non-U.S. Plans		Postretirement Benefits	
	2019	2018	2019	2018	2019	2018
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)	<u>\$ 142,936</u>	<u>\$ 151,540</u>	<u>\$ 373,904</u>	<u>\$ 317,218</u>	<u>\$ (11,702)</u>	<u>\$ (20,562)</u>

<u>(DOLLARS IN THOUSANDS)</u>	U.S. Plans		Non-U.S. Plans	
	2019	2018	2019	2018
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>(DOLLARS IN THOUSANDS)</u>	U.S. Plans		Non-U.S. Plans		Postretirement Benefits	
	2019	2018	2019	2018	2019	2018
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.

(DOLLARS IN THOUSANDS)	U.S. Plans for the Year Ended December 31, 2019			
	Level 1	Level 2	Level 3	Total
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

(DOLLARS IN THOUSANDS)	U.S. Plans for the Year Ended December 31, 2018			
	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	\$ —	\$ 126,021	\$ —	\$ 530,916
Receivables				\$ 1,465
Total				\$ 532,381

- (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	\$ 275,937	\$ 615,151	\$ 114,195	\$ 1,005,283

Non-U.S. Plans for the Year Ended

December 31, 2018

<i>(DOLLARS IN THOUSANDS)</i>	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:

(DOLLARS IN THOUSANDS)	Non-U.S. Plans		
	Real Estate	Hedge Funds	Total
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	<u>\$ 84,013</u>	<u>\$ 30,182</u>	<u>\$ 114,195</u>

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:

(DOLLARS IN THOUSANDS)	U.S. Pension Plans	Non-U.S. Pension Plans		Postretirement Benefit Plan
		2019	2018	
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:

<u>(DOLLARS IN THOUSANDS)</u>	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	—	12,154	Other income, net
Foreign currency contracts	—	352	Interest expense
Interest rate swaps	\$ 557	\$ 14,505	

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):

<i>(DOLLARS IN THOUSANDS)</i>	Amount of Gain (Loss) Recognized in OCI on Derivative (Effective Portion)		Amount of Gain (Loss) Reclassified from AOCI into Income (Effective Portion)	
	For the years ended December 31,		Location of Gain (Loss) Reclassified from AOCI into Income (Effective Portion)	For the years ended December 31,
	2019	2018		2019
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	\$ 14,731	\$ 65,495		\$ 7,647 \$ (7,067)

(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:

<u>(DOLLARS IN THOUSANDS)</u>	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)
<u>(DOLLARS IN THOUSANDS)</u>	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)
<u>(DOLLARS IN THOUSANDS)</u>	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:

(DOLLARS IN THOUSANDS)	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	<u>\$ 7,647</u>	<u>\$ (7,067)</u>	<u>\$ 3,154</u>	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	<u>\$ (9,657)</u>	<u>\$ (10,040)</u>	<u>\$ (13,881)</u>	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	<hr/> \$ 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	<hr/> \$ 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).