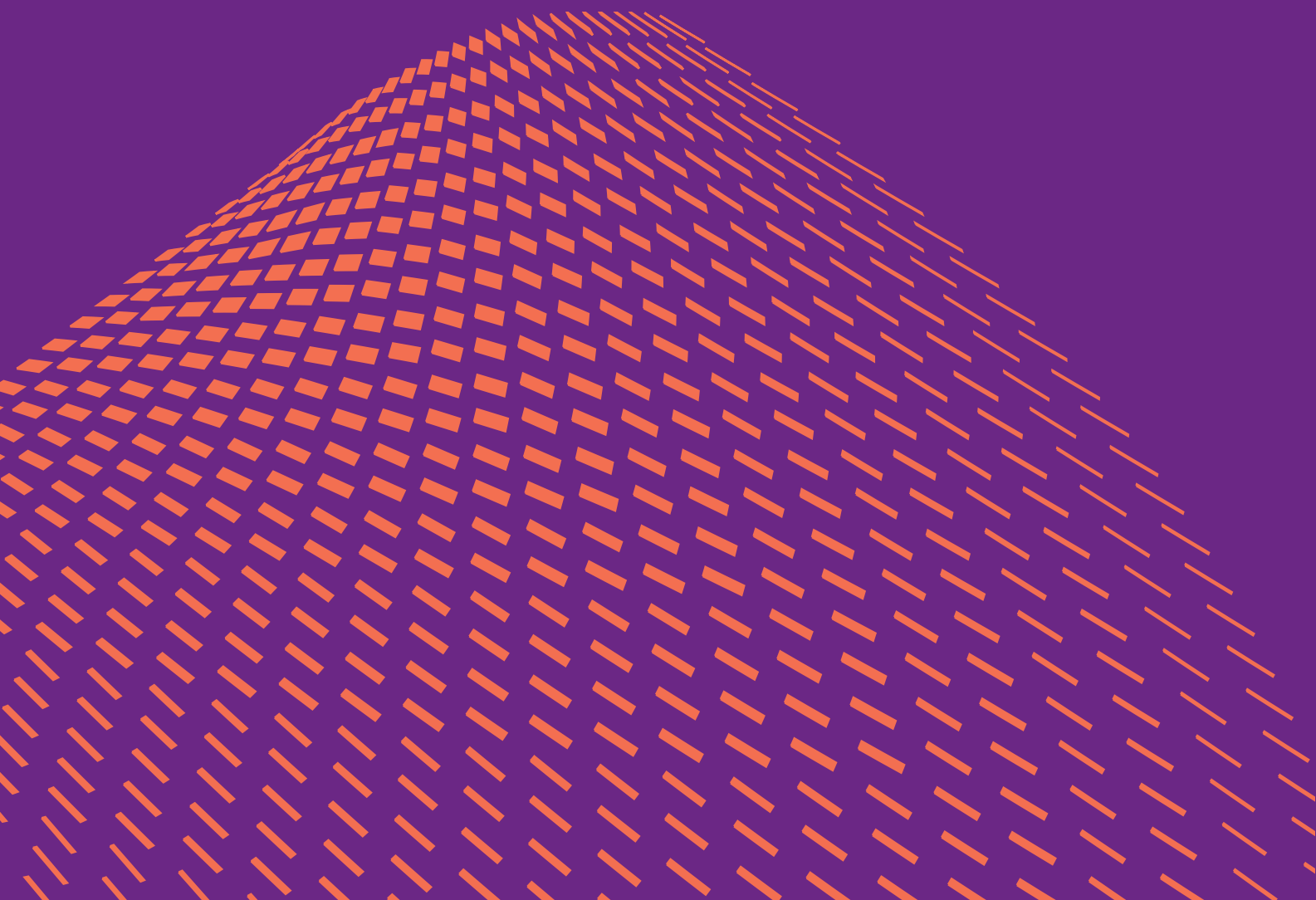
2017 Form 10-K

LivaNova

Health innovation that matters



UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

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

For the year ended December 31, 2017

OR

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

Commission file number: 001-37599

LivaNova PLC

(Exact name of registrant as specified in its charter)

ENGLAND AND WALES	**98-1268150**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
20 Eastbourne Terrace, London, United Kingdom, W2 6LG	
(Address of principal executive offices)	*(Zip Code)*
44 (0) 20 3325 0660	
Registrant's telephone number, including area code:	

SECURITIES REGISTERED PURSUANT TO SECTION 12(B) OF THE ACT:	
Title of Each Class of Stock	Name of Each Exchange on Which Registered
Ordinary Shares – £1.00 par value per share	**NASDAQ Global Market**

SECURITIES REGISTERED PURSUANT TO SECTION 12(G) OF THE ACT:
NONE

Indicate by check mark	YES	NO
• if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.	☑	☐
• if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.	☐	☑
• whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.	☑	☐
• whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).	☑	☐
• if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Annual Report on Form 10-K or any amendment to this Form 10-K.	☐	

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

Large accelerated filer ☑	Accelerated filer ☐	Non-accelerated filer ☐ (Do not check if a smaller reporting company)	Smaller reporting company ☐	Emerging growth company ☐

• If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.		☐
• whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).	☐	☑

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30, 2017, the last business day of the most recently completed second fiscal quarter, based upon the last sales price reported for such dates on the NASDAQ Global Market was approximately $2.9 billion. For purposes of this disclosure, ordinary shares held by persons who hold more than 5% of the outstanding ordinary shares and shares held by executive officers and directors of the registrant have been excluded as such persons may be deemed to be affiliates.

As of February 22, 2018, 48,296,202 ordinary shares were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement of LivaNova PLC for the 2018 Annual Meeting of Stockholders, which will be filed within 120 days of December 31, 2017, are incorporated by reference into Part III of this Annual Report on Form 10-K.

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In this Annual Report on Form 10-K, "LivaNova," "the Company," "we," "us" and "our" refer to LivaNova PLC and its consolidated subsidiaries.

This report may contain references to our proprietary intellectual property, including among others:

- Trademarks for our VNS therapy systems, the VNS Therapy® System, the VITARIA® System and our proprietary pulse generator products: Model 102 (Pulse®), Model 102R (Pulse Duo®), Model 103 (Demipulse®), Model 104 (Demipulse Duo®), Model 105 (AspireHC®), Model 106 (AspireSR®) and Model 1000 (SenTiva™).
- Trademarks for our oxygenator product systems: Inspire®, Heartlink® and Connect™.
- Trademarks for our line of surgical tissue and mechanical valve replacements and repair products: Mitroflow®, Crown PRT®, Solo Smart™, Perceval®, Top Hat®, Reduced Series Aortic Valves™, Carbomedics® Carbo-Seal®, Carbo-Seal Valsalva®, Carbomedics® Standard™, Orbis™ and Optiform®, Memo 3D®, Memo 3D ReChord™, AnnuloFlo®, AnnuloFlex®, Bicarbon Slimline™, Bicarbon Filtline™ and Bicarbon Overline®.

These trademarks and tradenames are the property of LivaNova or the property of our consolidated subsidiaries and are protected under applicable intellectual property laws. Solely for convenience, our trademarks and tradenames referred to in this Annual Report on Form 10-K may appear without the® or ™ symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights to these trademarks and tradenames.

Cautionary Statement About Forward-Looking Statements

Certain statements in this Annual Report on Form 10-K, other than purely historical information, are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements include, but are not limited to LivaNova's plans, objectives, strategies, financial performance and outlook, trends, the amount and timing of future cash distributions, prospects or future events and involve known and unknown risks that are difficult to predict. As a result, our actual financial results, performance, achievements or prospects may differ materially from those expressed or implied by these forward-looking statements. In some cases, you can identify forward-looking statements by the use of words such as "may," "could," "seek," "guidance," "predict," "potential," "likely," "believe," "will," "should," "expect," "anticipate," "estimate," "plan," "intend," "forecast," "foresee" or variations of these terms and similar expressions, or the negative of these terms or similar expressions. Such forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by LivaNova and its management based on their knowledge and understanding of the business and industry, are inherently uncertain. These statements are not guarantees of future performance, and stockholders should not place undue reliance on forward-looking statements. There are a number of risks, uncertainties and other important factors, many of which are beyond our control, that could cause our actual results to differ materially from the forward-looking statements contained in this Annual Report on Form 10-K. Such risks, uncertainties and other important factors include, among others: the risks, uncertainties and factors set forth in the "Risk Factors" section of this Annual Report on Form 10-K, previous or future Quarterly Reports on Form 10-Q and Annual or Transitional Reports on Form 10-K as well as other documents that we have filed or will file with the SEC; business and financial risks inherent to the industries in which we operate; our ability to hire and retain key personnel; our ability to attract new customers and retain existing customers in the manner anticipated; our reliance on and integration of information technology systems; changes in legislation or governmental regulations affecting us; changes relating to competitive factors in the industries in which we operate; international, national or local economic, social or political conditions that could adversely affect us, our partners or our customers; conditions in the credit markets; our inability to meet expectations regarding the timing, completion and accounting of tax treatments; reductions in customer spending, a slowdown in customer payments and changes in customer demand for products and services; our international operations, which are subject to the risks of currency fluctuations and foreign exchange controls; and the potential of international unrest, economic downturn or effects of currencies, tax assessments, tax adjustments, anticipated tax rates, raw material costs or availability, benefit or retirement plan costs or other regulatory compliance costs.

These factors are not necessarily all of the important factors that could cause our actual financial results, performance, achievements or prospects to differ materially from those expressed in or implied by any of our forward-looking statements. Other unknown or unpredictable factors also could harm our results. All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements set forth above. Forward-looking statements speak only as of the date they are made, and we do not undertake or assume any obligation to update publicly any of these forward-looking statements to reflect actual results, new information or future events, changes in assumptions or changes in other factors affecting forward-looking statements, except to the extent required by applicable laws. If we update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

The following discussion and analysis should be read in conjunction with and are qualified in their entirety by reference to the discussions included in Item 1A. Risk Factors, Item 7. Management's Discussion & Analysis of Financial Condition and Results of Operations and elsewhere in this Annual Report on Form 10-K.

Available Information

Our executive headquarters are located at 20 Eastbourne Terrace, London, United Kingdom W2 6LG. Our website address is *www.livanova.com*. We make available free of charge on or through our website our Proxy Statements on Schedule 14A, Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, and reports relating to beneficial ownership of our securities filed or furnished pursuant to Section 16 of the Exchange Act, as soon as reasonably practicable after electronically filing such material with the SEC. Our website also contains the charters for each standing committee of our Board of Directors and our Code of Business Conduct and Ethics.

Materials we file with the SEC may be read and copied at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. The SEC also maintains a website (*www.sec.gov)* that contains reports, proxy and information statements, and other information regarding our company, filed electronically with the SEC.

We may from time to time provide important disclosures to investors by posting them in the Investor Relations section of our website, as allowed by SEC rules. Information on our website is not incorporated into this Annual Report on Form 10-K.

PART I

Item 1 Business

Description of the Business and Background

LivaNova PLC, headquartered in London, (collectively with its subsidiaries, the "Company", "LivaNova", "we" or "our"), is a global medical device company focused on the development and delivery of important therapeutic solutions for the benefit of patients, healthcare professionals and healthcare systems throughout the world. Working closely with our global team of medical professionals in the fields of Cardiac Surgery and Neuromodulation, we design, develop, manufacture and sell innovative therapeutic solutions that are consistent with our mission to improve our patients' quality of life, increase the skills and capabilities of healthcare professionals and minimize healthcare costs.

We were organized under the laws of England and Wales on February 20, 2015 for the purpose of facilitating the business combination of Cyberonics, Inc., a Delaware corporation ("Cyberonics") and Sorin S.p.A., a joint stock company organized under the laws of Italy ("Sorin"). The business combination of Cyberonics and Sorin (the "Merger") became effective on October 19, 2015, at which time LivaNova's ordinary shares were listed for trading on the NASDAQ Global Market ("NASDAQ") and the London Stock Exchange ("LSE") under the trading symbol "LIVN." On April 5, 2017, we delisted from the LSE and are currently only listed for trading on the NASDAQ. For further information regarding the business combination, refer to "Note 3. Business Combinations" in the notes to the consolidated financial statements included in this Annual Report on Form 10-K.

Business Franchises

LivaNova is comprised of two principal Business Franchises, which are also our reportable segments: Cardiac Surgery and Neuromodulation, corresponding to our primary therapeutic areas. Other corporate activities include corporate business development and New Ventures, focused on new growth platforms and identification of other opportunities for expansion.

On November 20, 2017, we entered into a Letter of Intent ("LOI") to sell our Cardiac Rhythm Management Business Franchise ("CRM") to MicroPort Scientific Corporation for $190 million in cash. We expect to enter into the definitive acquisition agreement contemplated by the LOI following completion of the notification and consultation process with CRM's employee works councils as required by local laws. Completion of the transaction is subject to entry into the definitive acquisition agreement, receipt of relevant regulatory approvals, including fulfilling the requirements of the Hong Kong Stock Exchange's Major Transaction requirements, and other customary closing conditions. We expect the transaction to close in the second quarter of 2018. Accordingly, the results of operations of the CRM Business Franchise are reflected as discontinued operations for all periods presented in this Annual Report on Form 10-K and related assets and liabilities are presented as held for sale.

For further information regarding our business segments, historical financial information and our methodology for the presentation of financial results, please refer to the consolidated financial statements and accompanying notes beginning on page F-1 of this Annual Report on Form 10-K.

Cardiac Surgery

Our Cardiac Surgery Business Franchise ("CS") is engaged in the development, production and sale of cardiac surgery products, including oxygenators, heart-lung machines, perfusion tubing systems, cannulae and other accessories used for extracorporeal circulation, systems for autologous blood transfusion and blood washing, as well as a complete line of surgical tissue and mechanical heart valve replacements and repair products.

Cardiopulmonary Products

During conventional coronary artery bypass graft procedures and heart valve surgery, the patient's heart is temporarily stopped, or arrested. The patient is placed on an extracorporeal circulatory support system that temporarily functions as the patient's heart and lungs and provides blood flow to the body. Our products include systems to enable cardiopulmonary bypass, including heart-lung machines, oxygenators, perfusion tubing sets, cannulae and accessories, as well as related equipment and disposables for autotransfusion and autologous blood washing for neonatal, pediatric and adult patients. Our primary cardiopulmonary products include:

Heart-lung machines

The heart-lung machine ("HLM") product group includes heart-lung machines, heater coolers, related cardiac surgery equipment and maintenance services.

Oxygenators and perfusion tubing systems

The oxygenators product group, which includes oxygenators and other disposable devices for extracorporeal circulation, includes the Inspire systems. The Inspire range of products, comprised of 12 models, provides perfusionists with a customizable approach for the benefit of patients.

Connect

Connect is our perfusion charting system. Focused on real time and retrospective calculations and trending tools, Connect assists perfusionists with data management during and after cardiopulmonary bypass.

Heartlink

Heartlink is our goal-directed perfusion system linking the Connect perfusion charting system with the Inspire oxygenator to achieve a better outcome by adapting adequacy of perfusion to the patient, thus reducing post-operative complications and Intensive Care Unit and hospital length of stay. Inspire, Heartlink and Connect products can all be integrated with our HLM machines to deliver a unique perfusion solution combining hardware components, disposable devices and data management systems and can all be integrated with our HLM machines to deliver a unique perfusion solution.

Autotransfusion systems

One of the key elements for a complete blood management strategy is autologous blood transfusion, which involves the collection, processing and reinfusion of the patient's own blood lost at the surgical site during the peri-operative period.

Cannulae

Our cannulae product family, part of the oxygenator product group, is used to connect the extracorporeal circulation to the heart of the patient during cardiac surgery.

Heart Valves and Repair Products

We offer a comprehensive line of products to treat a variety of heart valve disorders, including a complete line of surgical tissue and mechanical valve replacements and repair products for damaged or diseased heart valves. Our heart valves and repair product offerings include:

Tissue heart valves

Our tissue valves include the Mitroflow aortic pericardial tissue valve with phospholipid reduction treatment ("PRT") which is designed to mitigate valve calcification, and the Crown PRT and Solo Smart aortic pericardial tissue valves. CROWN PRT is the latest advancement in stented aortic bioprosthesis technology, featuring surgeon-friendly design, PRT technology, and state-of-the-art hemodynamic and durability performance. CROWN PRT enables intuitive intraoperative handling through a short rinse time, enhanced ease of implant through visible markers and improved radiographic visualization through dedicated X-ray markers. Our Solo Smart aortic pericardial tissue valve is an innovative, completely biological aortic heart valve with no synthetic material and a removable stent. Solo Smart provides the ease of implantation of a stented valve with the hemodynamic performance of a stentless valve.

Self-anchoring tissue heart valves

Perceval is LivaNova's sutureless bioprosthetic device designed to replace a diseased native valve or a malfunctioning prosthetic aortic valve using either traditional or minimally invasive heart surgery techniques. Perceval incorporates a unique technology that allows 100% sutureless positioning and anchoring at the implantation site. This, in turn, offers the potential benefit of reducing the time the patient spends in cardiopulmonary bypass.

Mechanical heart valves

Our wide range of mechanical valve offerings includes the Carbomedics Standard, Top Hat and Reduced Series Aortic Valves, as well as the Carbomedics Carbo-Seal and Carbo-Seal Valsalva aortic prostheses. We also offer the Carbomedics Standard, Orbis and Optiform mechanical mitral valves and Bicarbon Slimline, Bicarbon Fitline and Bicarbon Overline aortic and mitral valves.

Heart valve repair products

Mitral valve repair is a well-established solution for patients suffering from a leaky mitral valve, or mitral regurgitation. We offer a wide range of mitral valve repair products, including the Memo 3D and Memo 3D ReChord, AnnuloFlo and AnnuloFlex.

Neuromodulation

Our Neuromodulation Business Franchise designs, develops and markets neuromodulation-based medical devices for the treatment of epilepsy and depression.

Neuromodulation Products

Our seminal neuromodulation product, the VNS Therapy®System, is an implantable device authorized for the treatment of drug-resistant epilepsy and treatment-resistant depression ("TRD"). The VNS Therapy System consists of: an implantable pulse generator and connective lead that work to stimulate

the vagus nerve; surgical equipment to assist with the implant procedure; equipment and instruction manuals enabling a treating physician to set parameters for a patient's pulse generator; and for epilepsy, magnets to manually suspend or induce nerve stimulation. The VNS Therapy pulse generator and lead are surgically implanted in a subcutaneous pocket in the upper left chest area, generally during an out-patient procedure; the lead (which does not need to be removed to replace a generator with a depleted battery) is connected to the pulse generator and tunneled under the skin to the vagus nerve in the lower left side of the patient's neck.

VNS therapy for the treatment of epilepsy

Globally, there are several broad types of treatment available to persons with epilepsy: multiple seizure medications, various forms of the ketogenic diet, vagus nerve stimulation, resective brain surgery, trigeminal nerve stimulation, responsive intracranial neurostimulation and deep brain stimulation. Seizure medications typically serve as a first-line treatment and are prescribed for virtually all patients diagnosed with epilepsy. After two seizure medications fail to deliver seizure control, the epilepsy is defined as drug-resistant, at which point, adjunctive non-drug options are considered, including VNS therapy, brain surgery and a ketogenic diet.

In the U.S., our VNS Therapy System was the first medical device treatment approved by the U.S. Food and Drug Administration ("FDA") in 1997 for refractory, drug-resistant epilepsy in adults and adolescents over 12 years of age and is indicated for use as an adjunctive therapy in reducing the frequency of seizures. Other worldwide regulatory bodies have also approved the VNS Therapy System for the treatment of epilepsy, many without age restrictions or seizure-type limitations. Patients with epilepsy can also use a small, handheld magnet provided with our VNS Therapy System to activate or inhibit stimulation manually. We sell a number of VNS product models for the treatment of epilepsy, including our Model 102 (Pulse™), Model 102R (Pulse Duo™), Model 103 (Demipulse®), Model 104 (Demipulse Duo®), Model 105 (AspireHC®) and Model 106 (AspireSR®) and the Model 1000 (SenTiva™) pulse generators. To date, an estimated 110,000 patients have been treated with our VNS Therapy System for epilepsy.

Our AspireSR generator provides the benefits of VNS Therapy, with an additional feature: automatic stimulation in response to detection of changes in heart rate potentially indicative of a seizure. The AspireSR generator is capable of delivering additional stimulation automatically by responding to a patient's relative heart-rate changes that exceed certain variable thresholds, which are adjustable. Heart-rate changes accompany seizure activity in certain patients. The thresholds are programmed by the patient's physician and can be adjusted to suit the patient's level of physical activity or for other reasons. In October 2017, we obtained FDA approval to market our SenTiva VNS Therapy System, which consists of the SenTiva implantable generator and the next-generation VNS Therapy Programming System. The SenTiva generator is the smallest and lightest device capable of delivering responsive therapy for epilepsy. The SenTiva VNS Therapy Programming System features a wireless wand and a new user interface on a small tablet. Together, these components offer patients with drug-resistant epilepsy a physician-directed, customizable therapy with smart technology that reduces the number of seizures, lessens the duration of seizures and enables a faster recovery.

In June 2017, the FDA approved our VNS Therapy device for use in patients who are at least four years of age and have partial onset seizures that are refractory to antiepileptic medications. VNS Therapy is the first and only FDA-approved device for drug-resistant epilepsy in this pediatric population. Previously, VNS Therapy was approved by the FDA for patients 12 years or older.

In addition, in June 2017, we received FDA approval, and in August 2017, we received CE Mark approval, for our VNS Therapy device for expanded magnetic resonance imaging ("MRI") labeling affirming VNS Therapy as the only epilepsy device approved by the FDA for MRI scans. Currently, SenTiva, AspireHC and AspireSR models of VNS Therapy technology provide for this expanded MRI access.

VNS for the treatment of depression

In July 2005, the FDA approved the VNS Therapy System for the adjunctive treatment of chronic or recurrent depression for patients 18 years or older who are experiencing a major depressive episode and have not had an adequate response to four or more antidepressant treatments. In May 2007, the Centers for Medicare and Medicaid Services ("CMS") issued a national determination of non-coverage within the United States with respect to reimbursement of the VNS Therapy System for patients with TRD, significantly limiting access to this therapeutic option for most patients. As the result of lack of access following this determination, we have not engaged in significant commercial efforts with respect to TRD in any of our markets. As a result of new clinical evidence, including the completion of a post-approval dosing study and other studies that have resulted in more than five publications in peer-reviewed journals, we submitted a formal request to CMS for reconsideration of VNS therapy for TRD. CMS declined our request for reconsideration in May 2013. In October 2013, two Medicare beneficiaries appealed the lack of coverage by Medicare through the Departmental Appeals Board ("DAB") of the Department of Health and Human Services. In January 2015, the DAB concluded that the record relating to the non-coverage conclusion by CMS is complete and adequately supports the non-coverage determination.

Discontinued Operations Cardiac Rhythm Management Business Franchise

CRM, presented as discontinued operations in this Annual Report on Form 10-K, develops, manufactures and markets products for the diagnosis, treatment, and management of heart rhythm disorders and heart failure. For more information, see Note 4 to the consolidated financial statements in "Item 8. Financial Statements and Supplementary Data" in this Annual Report on Form 10-K.

Corporate Activities and New Ventures

Corporate activities include shared services for finance, legal, human resources and information technology, corporate business development and New Ventures.

The New Ventures group evaluates growth opportunities and new potential areas of investment for the Company to expand our product portfolio to meet emerging patient needs. In particular, New Ventures focuses on innovative technologies to treat three main pathologies: heart failure, sleep apnea and mitral valve regurgitation, areas of unmet clinical need where there is no optimal therapeutic solution for the majority of patients. New Ventures partners with public and private institutions and medical startups to develop future therapeutic solutions in these areas.

Research and Development ("R&D")

The markets in which we participate are subject to rapid technological advances. Product improvement and innovation are necessary to maintain market leadership. Our R&D efforts are directed toward maintaining or achieving technological leadership in each of the markets we serve to help ensure that patients using our devices and therapies receive the most advanced and effective treatment possible. We remain committed to developing technological enhancements and new uses for existing products and less invasive and new technologies for new and emerging markets to address unmet patient needs. That commitment leads us to initiate and participate in many clinical trials each fiscal year as the demand for clinical and economic evidence remains high. We also expect our development activities to help reduce patient care costs and the length of hospital stays in the future.

Approximately 20% of our employees work in R&D improving existing products and therapies, expanding their uses and applications and developing new products. We continue to focus on optimizing innovation and assessing the ability of our R&D programs to deliver economic value to the customer. More specifically, our current R&D expenses consist of product design and development efforts, clinical study programs and regulatory activities, which are essential to the Company's strategic portfolio initiatives, including TMVR, Treatment Resistant Depression and Heart Failure.

During the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015, and the fiscal year ended April 24, 2015, we spent $109.7 million, $82.5 million, $41.9 million and $42.2 million on R&D, respectively.

Acquisitions and Investments

Our strategy of providing a broad range of therapies requires a wide variety of technologies, products and capabilities. The rapid pace of technological development in the medical industry and the specialized expertise required in different areas of medicine make it difficult for one company alone to develop a broad portfolio of technological solutions. In addition to internally generated growth through research and development efforts, we have historically relied, and expect to continue to rely, on acquisitions, investments and alliances to provide access to new technologies in both new and existing markets.

We expect to further our strategic objectives and strengthen our existing businesses by making future acquisitions or investments in areas that we believe we can acquire or stimulate the development of new technologies and products. Mergers and acquisitions of medical technology companies are inherently risky and no assurance can be given that any of our previous or future acquisitions will be successful or will not materially adversely affect our consolidated operations, financial condition and/or cash flows.

Caisson Interventional, LLC

On May 2, 2017, we acquired the remaining 51% equity interests in Caisson Interventional, LLC ("Caisson"). Caisson, a clinical-stage medical device company based in Maple Grove, Minnesota, is focused on the design, development and clinical evaluation of a novel transcatheter mitral valve replacement ("TMVR") implant device for treating mitral regurgitation through replacement of the native mitral valve using a fully transvenous delivery system. The financial results of Caisson are included within New Ventures.

ImThera Medical, Inc.

On January 16, 2018, we acquired ImThera Medical, Inc. ("ImThera"). We previously held 14% of ImThera's outstanding equity. Headquartered in San Diego, Calif., ImThera was a privately held company focused on neurostimulation for the treatment of obstructive sleep apnea ("OSA"). ImThera manufactures an implantable device that stimulates multiple tongue muscles via the hypoglossal nerve, which opens the airway while a patient is sleeping. The ImThera device is highly aligned with our Neuromodulation Business Franchise, and we plan to optimize the technology. In the near term, we plan to focus on expanding ImThera's current commercial presence in the European market, while advancing enrollment in a U.S. Food and Drug Administration pivotal study.

Patents and Licenses

We rely on a combination of patents, trademarks, copyrights, trade secrets, and non-disclosure and non-competition agreements to protect our intellectual property. We generally file patent applications in the U.S. and countries where patent protection for our technology is appropriate and available. As of December 31, 2017, we held more than 1,900 issued patents worldwide, with approximately 400 pending patent applications that cover various aspects of our technology, including CRM. Patents typically have a 20-year term from the application filing date. In addition, we hold exclusive and non-exclusive licenses to a variety of third-party technologies covered by patents and pending patent applications. There can be no assurance that pending patent applications will result in the issuance of patents, that patents issued to or licensed by us will not be challenged or circumvented by competitors, or that these patents will be found to be valid or sufficiently broad to protect our technology or to provide us with a competitive advantage. We have also obtained certain trademarks and trade names for our products and maintain certain details about our processes, products and strategies as trade secrets. In the aggregate, these intellectual property assets are considered to be of material importance to our business segments and operations. We regularly review third-party patents and patent applications in an effort to protect our intellectual property and avoid disputes over proprietary rights.

We rely on non-disclosure and non-competition agreements with employees, consultants and other parties to protect, in part, trade secrets and other proprietary technology. There can be no assurance that these agreements will not be breached, that we will have adequate remedies for any breach, that others will not independently develop equivalent proprietary information or that third parties will not otherwise gain access to our trade secrets and proprietary knowledge.

For additional information, please refer to Item 1A. Risk Factors of this Annual Report on Form 10-K, under the section entitled "*Risk Factors Relating to LivaNova's Business-We are substantially dependent on patent and other proprietary rights and failing to protect such rights or to be successful in litigation related to our rights or the rights of others may result in our payment of significant monetary damages and/or royalty payments, negatively impact our ability to sell current or future products, or prohibit us from enforcing its patent and other proprietary rights against others*."

Markets and Distribution Methods

The three largest markets for our medical devices are Europe, the United States and Japan. Emerging markets are an area of increasing focus and opportunity. We sell most of our medical devices through direct sales representatives in the United States and a combination of direct sales representatives and independent distributors in markets outside the United States.

Our marketing and sales strategy is focused on rapid, cost-effective delivery of high-quality products to a diverse group of customers worldwide, including perfusionists, neurologists, neurosurgeons and other physicians, hospitals and other medical institutions and healthcare providers. To achieve this objective, we maintain a highly knowledgeable and dedicated sales staff that is able to foster strong relationships with such a range of customers. We maintain excellent working relationships with professionals in the medical industry, which provides us with a detailed understanding of therapeutic and diagnostic developments, trends and emerging opportunities, enabling us to respond quickly to the changing needs of providers and patients. We actively participate in medical meetings and conduct comprehensive training and educational activities in an effort to enhance our presence in the medical community, and we believe that these activities also contribute to healthcare professionals' expertise.

Due to the emphasis on cost-effectiveness in healthcare delivery, the current trend among hospitals and other medical device customers is to consolidate into larger purchasing groups in order to enhance purchasing power. As a result, customer transactions have become increasingly complex. Enhanced purchasing power may also lead to pressure on pricing and an increase in the use of preferred vendors. Our customer base continues to evolve to reflect such economic changes across the geographic markets we serve.

Competition and Industry

We compete in the medical device market in more than 5,000 hospitals in more than 100 countries. This market is characterized by rapid change resulting from technological advances and scientific discoveries. Our competitors across our product portfolio range from large manufacturers with multiple business lines to small manufacturers offering a limited selection of specialized products. In addition, we face competition from providers of alternative medical therapies, such as pharmaceutical companies and providers of cannabis. Product problems, physician advisories, safety alerts and publications about our products can cause major shifts in industry market share, reflecting the importance of product quality, product efficacy and quality systems in the medical device industry. In addition, because of developments in managed care, economically motivated customers, consolidation among healthcare providers, increased competition, and declining reimbursement rates, we may be increasingly required to compete on the basis of price. In order

to continue to compete effectively, we must continue to create or acquire advanced technology, incorporate this technology into proprietary products, obtain regulatory approvals in a timely manner, maintain high-quality manufacturing processes and successfully market these products.

Cardiac Surgery

Our competitors include Terumo Medical Corporation, Maquet Medical Systems, Medtronic Plc, Haemonetics Corporation, Edwards Lifesciences Corp. and Abbott Laboratories, Inc. (formerly St. Jude Medical, Inc.), although not all competitors are present in all product lines.

Neuromodulation

Our primary medical device competitors in the Neuromodulation product group are NeuroPace, Inc. and Medtronic Plc.

Production, Quality Systems and Raw Materials

We manufacture a majority of our products at 10 manufacturing facilities located in Italy, Germany, the United States, Canada, Brazil and Australia. We purchase raw materials and many of the components used in our manufacturing facilities from numerous suppliers in various countries. For quality assurance, sole source availability or cost effectiveness purposes, we may procure certain components and raw materials from a sole supplier. We work closely with our suppliers to ensure continuity of supply while maintaining high quality and reliability.

The quality systems we utilize in the design, production, warehousing and distribution of our products are designed to ensure that our products are safe and effective. Some of the governmental agencies and quality system regulations with which we are required to comply are as follows:

- The FDA's Quality System Regulation ("QSR") under section 520 of the federal Food, Drug and Cosmetic Act ("FDCA") and its implementing regulations at 21 C.F.R. Part 820.
- The International Standards Organization - ("ISO") EN ISO 13485:2012, Medical devices - Quality management systems.
- The independent certification bodies, DEKRA, LNE/G-MED and TUV SUD, which act as our notified bodies to ensure that our manufacturing quality systems comply with ISO 13485:2003.
- The European Council Directives 93/42/EEC and 90/385/EEC, ISO 13485, which relates to medical devices and active implantable medical devices.

In addition, we utilize environmental management systems and safety programs to protect the environment and our employees. Some of the regulations and governmental agencies with which we comply are as follows:

- The U.S. Environmental Protection Agency ("EPA")
- The Occupational Health and Safety Assessment System ("OSHAS")
- The European Union Registration, Evaluation, Authorization and Restriction of Chemicals ("REACH")
- Italian regulations under the Integrated Environmental Authorization acts
- ISO 14001 certification

Government Regulation and Other Considerations

Our medical devices are subject to regulation by numerous government agencies, including the FDA and counterpart agencies outside the United States. To varying degrees, each of these agencies require us to comply with laws and regulations governing the research, development, testing, manufacturing, labeling, pre-market clearance or approval, marketing, distribution, advertising, promotion, record keeping, reporting, tracking, and importing and exporting of medical devices. Our business is also affected by patient privacy and security laws, cost containment initiatives, and environmental health and safety laws and regulations worldwide. The primary laws and regulations that affect our business are described below.

The laws applicable to LivaNova are subject to changing and evolving interpretations. If a governmental authority were to conclude that we are not in compliance with applicable laws and regulations, we and our officers and employees could be subject to severe civil and criminal penalties, including substantial fines and damages, and exclusion from participation as a supplier of product to beneficiaries covered by government programs, among other potential enforcement actions.

United States

Each medical device we seek to distribute commercially in the United States must first receive 510(k) clearance or pre-market approval from the FDA, unless specifically exempted by the agency. The FDA groups medical devices into one of three classes - Class I, Class II or Class III - depending on the degree of risk associated with each medical device and the extent of control needed to ensure safety and effectiveness. Devices deemed to pose lower risk are categorized as either Class I or II, which requires the manufacturer to submit to the FDA a 510(k) pre-market notification requesting clearance for commercial distribution of the device in the United States. Some low-risk devices are exempted from this requirement. Devices deemed by the FDA to pose the greatest risk, such as life sustaining, life-supporting or implantable devices, or devices deemed not substantially equivalent to a previously 510(k)-cleared device, are categorized as Class III, requiring approval of an application for pre-market approval ("PMA").

510(k) Clearance Process

To obtain 510(k) clearance, LivaNova must submit a pre-market notification to the FDA demonstrating that the proposed device is substantially equivalent to a previously-cleared 510(k) device, a device that was in commercial distribution before May 28, 1976 for which the FDA has not yet called for the submission of approval PMA application, or a device that has been reclassified from Class III to either Class II or I. In rare cases, Class III devices may be cleared through the 510(k) process. The FDA's 510(k) clearance process usually takes three to twelve months from the date the application is submitted and filed with the FDA, but may take significantly longer and clearance is never assured. Although many 510(k) pre-market notifications are cleared without clinical data, in some cases, the FDA requires significant clinical data to support substantial equivalence, which may significantly prolong the review process.

After a device receives 510(k) clearance, any subsequent device modification that could significantly affect its safety or effectiveness, or that would constitute a major change in its intended use, will require a new 510(k) clearance or could require a PMA. The FDA requires each manufacturer to make this determination initially, but the FDA may review any such decision and may disagree with a manufacturer's determination. If the FDA disagrees with a manufacturer's determination, the FDA may require the manufacturer to cease marketing and/or recall the modified device until the manufacturer obtains a 510(k) clearance or approval of a PMA application. In addition, the FDA is currently evaluating the 510(k) process and may make substantial changes to industry requirements, including which devices are eligible for 510(k) clearance, the ability to rescind previously granted 510(k) clearances and additional requirements that may significantly impact the process.

Pre-market Approval Process

Manufacturers must submit a PMA application for all Class III medical devices (although the FDA has the discretion to continue to allow certain pre-amendment Class III devices to use the 510(k) process) and all other medical devices that cannot be cleared through the 510(k) process. A PMA application typically must be supported by, among other things, extensive technical, pre-clinical and clinical study data, and manufacturing and labeling data to demonstrate the safety and effectiveness of the device to the FDA's satisfaction.

After a manufacturer files a PMA application, the FDA begins an in-depth review process, which typically takes between one and three years, but may take significantly longer. During this review period, the FDA may request additional information or clarification of information already provided. Also during the review period, the FDA often convenes an advisory panel of experts from outside the FDA to review and evaluate the application and provide recommendations to the FDA as to the approvability of the device. In addition, the FDA will conduct a pre-approval inspection of the manufacturing facility to ensure compliance with the QSR, which imposes elaborate design development, testing, control, documentation and other quality assurance procedures related to the design and manufacturing process. The FDA may approve a PMA application with post-approval conditions intended to ensure the safety and effectiveness of the device including, among other things, restrictions on labeling, promotion, sale, and distribution and collection of long-term follow-up data from patients in the clinical study that supported the approval. Failure to comply with the conditions of approval can result in a materially adverse enforcement action, including, among other things, the loss or withdrawal of the approval. Manufacturers must submit a new PMA application or a PMA supplement for approval of significant modifications to the design, indications, labeling or manufacturing process of a PMA-approved device. PMA supplements often require submission of the same type of information as an original PMA application, except that the supplement is limited to information needed to support any changes from the device covered by the original PMA application, and may not require extensive clinical data as extensive as the original PMA application, the convening of an advisory panel or pre-approval inspections.

Clinical Studies

One or more clinical studies may be required to support a 510(k) application and are almost always required to support a PMA application. Manufacturers must conduct clinical studies of unapproved or uncleared medical devices or devices intended for uses for which they are not approved or cleared (investigational devices) in compliance with FDA requirements. If human clinical studies of a device are required and the device presents a significant risk, the sponsor of the study must file an investigational device exemption ("IDE"), application prior to commencing the study. The IDE application must be supported by data, typically including the results of animal and/or laboratory testing. If the IDE application is approved by the FDA and one or more institutional review boards ("IRBs"), human clinical studies may begin at a specific number of institutional investigational sites with the specific number of patients approved by the FDA. If the device presents a non-significant risk to the patient, a sponsor may begin the clinical study after obtaining approval for the study by one or more IRBs without separate approval from the FDA. During the study, the sponsor must comply with the FDA's IDE requirements including, for example, investigator selection, monitoring of the clinical study sites, adverse event reporting and record keeping. The investigators must obtain patient informed consent, follow the investigational plan and study protocol, control the disposition of investigational devices and comply with reporting and record keeping requirements. We, the FDA and the IRB at each institution at which a clinical study is being conducted may suspend a clinical study at any time for various reasons, including a belief that the subjects are being exposed to an unacceptable risk.

Continuing Regulation

After a device is cleared or approved for marketing in the United States, numerous and pervasive regulatory requirements continue to apply, and we will continue to be subject to periodic inspections by the FDA to determine its compliance with these requirements, as will its suppliers, contract manufacturers and

contract testing laboratories. These requirements include, among others:

- the QSR, which governs, among other things, how manufacturers design, test, manufacture, modify, label, exercise quality control over and document manufacturing and quality issues regarding their products;
- Establishment Registration, which requires establishments involved in the production and distribution of medical devices intended for commercial distribution in the United States, to register with the FDA;
- Medical Device Listing, which requires manufacturers to list with the FDA the devices they have in commercial distribution;
- Labeling and claims regulations, which require that all advertising and promotion of devices be truthful, not misleading and fairly balanced and provide adequate directions for use, and that all claims be substantiated;
- Prohibition of marketing devices for off-label uses, including requirements relating to dissemination of articles and information and responding to unsolicited requests for off-label information;
- Medical Device Reporting ("MDR") regulations, which requires reporting to the FDA if a device may have caused or contributed to a death or serious injury, or if a device has malfunctioned and would be likely to cause or contribute to a death or serious injury if the malfunction were to recur;
- Reporting and record keeping for certain corrections or removals initiated by a manufacturer to reduce a risk to health posed by a device or to remedy a violation of the FDCA caused by the device that may present a risk to health;
- Statutory and regulatory requirements for Unique Device Identifiers ("UDIs") on devices and submission of certain information about each device to the FDA's Global Unique Device Identification Database ("GUDID"); and
- In some cases, ongoing monitoring and tracking of a device's performance and periodic reporting to the FDA of such performance results.

The FDA enforces these requirements by inspection and market surveillance. The FDA periodically inspects our manufacturing facilities, which potentially includes our suppliers. If the FDA observes conditions that may constitute violations, we must correct the conditions or satisfactorily demonstrate the absence of the violations. The FDA also has the authority to request repair, replacement or refund of the cost of any device manufactured or distributed by us. We continue to expend resources to maintain compliance with our obligations under the FDA's regulations. Failure to comply with applicable regulatory requirements may result in enforcement action by the FDA, which may include one or more of the following sanctions:

- untitled letters or warning letters;
- fines, injunctions and civil penalties;
- mandatory recall or seizure of our products;
- administrative detention or banning of our products;
- operating restrictions, partial suspension or total shutdown of production;
- refusing our request for 510(k) clearance or pre-market approval of new product versions;
- revocation of 510(k) clearance or pre-market approvals previously granted; and
- criminal prosecution and penalties.

Other than the U.S.

Outside the United States, we are subject to government regulation in the countries in which we operate. Although many of the regulations applicable to our products in these countries are similar to those of the FDA, these regulations vary significantly from country to country and with respect to the nature of the particular medical device. The time required to obtain foreign approvals to market our products may be longer or shorter than the time required in the United States, and requirements for such approvals may differ from FDA requirements.

In the European Economic Area, or EEA, (which is composed of the 28 Member States of the European Union ("EU") plus Norway, Liechtenstein and Iceland), a single regulatory approval process exists, and conformity with the legal requirements is represented by the CE mark. To obtain CE mark certification, defined products must meet minimum standards of performance, safety and quality (i.e., the essential requirements) set out in the EU Medical Devices Directives (Council Directive 93/42/EEC on Medical Devices and Council Directive 90/385/EEC on Active Implantable Medical Devices). To demonstrate compliance with the essential requirements, we must undergo a conformity assessment procedure, which varies according to the type of medical device and its classification. Except for low-risk medical devices, where the manufacturer can issue an EC Declaration of Conformity based on a self-assessment of the conformity of its products with the essential requirements of the EU Medical Devices Directives, a conformity assessment procedure requires the intervention of an organization accredited by a Member State of the EEA to conduct conformity assessments by a Notified Body. Depending on the relevant conformity assessment procedure, the Notified Body typically audits and examines the technical file and the quality system for the manufacture, design and final inspection of the manufacturer's devices. Following successful completion of a conformity assessment procedure, the Notified Body issues a certificate that entitles the manufacturer to affix the CE mark to its medical devices after having prepared and signed a related EC Declaration of Conformity. Manufacturers with CE marked devices are subject to regular inspections by Notified Bodies to monitor continued compliance with the applicable directives and essential requirements.

As a general rule, demonstration of conformity of medical devices and their manufacturers with the essential requirements must be based, among other things, on the evaluation of clinical data supporting the safety and performance of the products during normal conditions of use. Specifically, a manufacturer must demonstrate that the device achieves its intended performance during normal conditions of use, that the known and foreseeable risks, and any adverse events, are minimized

and acceptable when weighed against the benefits of its intended performance, and that any claims made about the performance and safety of the device (e.g., product labeling and instructions for use) are supported by suitable evidence.

In the EEA, clinical studies for medical devices usually require the approval of an Ethics Committee and approval by or notification to the national competent authorities. Both regulators and Ethics Committees also typically require the submission of adverse event reports during a study and may request a copy of the final study report.

The national competent authorities of the EEA countries, generally in the form of their ministries or departments of health, oversee the clinical research for medical devices and are responsible for market surveillance of products once they are placed on the market. We are required to report device failures and injuries potentially related to product use to these authorities in a timely manner. Various penalties exist for non-compliance with the laws setting forth the medical device directives.

In September 2012, the European Commission published proposals for the revision of the EU regulatory framework for medical devices. The proposal would replace the Medical Devices Directive and the Active Implantable Medical Devices Directive with a new regulation (the "Medical Devices Regulation"). Unlike the Directives that must be implemented into national laws, the Regulation would be directly applicable in all EEA Member States and so is intended to eliminate current national differences in regulation of medical devices.

In October 2013, the European Parliament approved a package of reforms to the European Commission's proposals. Under the revised proposals, only designated "special notified bodies" would be entitled to conduct conformity assessments of high-risk devices, such as active implantable devices. These special notified bodies will need to notify the European Commission when they receive an application for a conformity assessment for a new high-risk device. The European Commission will then forward the notification and the accompanying documents on the device to the Medical Devices Coordination Group ("MDCG"), (a new, yet to be created, body chaired by the European Commission, and representatives of Member States) for an opinion. These new procedures may result in the re-assessment of our existing medical devices, or a longer or more burdensome assessment of our new products. In May 2016, a political agreement was reached and the tentatively agreed upon text was published in June 2016. In April 2017, Regulation 2017/745 on medical devices ("Reg MDR") was published, beginning a three-year transition period. At the end of this transition period, national competent authorities, Notified Bodies and manufacturers must implement and ensure compliance with the changes enacted in the Reg MDR. Among other things, this new regulation imposes additional reporting requirements on manufacturers of high risk medical devices, imposes an obligation on manufacturers to appoint a "qualified person" responsible for regulatory compliance, and provides for stricter clinical evidence requirements. We have initiated activities to ensure compliance with the MDR by the end of the transition period.

To be sold in Japan, most medical devices must undergo thorough safety examinations and demonstrate medical efficacy before they are granted approval, or "shonin." The Japanese government, through the Ministry of Health, Labour and Welfare ("MHLW"), regulates medical devices under the Pharmaceutical Affairs Law ("PAL"). Oversight for medical devices is conducted with participation by the Pharmaceutical and Medical Devices Agency ("PMDA"), a quasi-government organization performing many of the review functions for MHLW. Penalties for a company's noncompliance with PAL can be severe, including revocation or suspension of a company's business license and criminal sanctions. MHLW and PMDA also assess the quality management systems of the manufacturer and product conformity to the requirements of the PAL. We are subject to compliance inspections by these agencies.

Many countries in which we operate (outside of the EU, United States and Japan) have their own regulatory requirements for medical devices. Most countries outside of the EU, United States and Japan require that product approvals be recertified on a regular basis, generally every five years. The recertification process requires that we evaluate any device changes and any new regulations or standards relevant to the device and, where needed, conduct appropriate testing to document continued compliance. Where recertification applications are required, they must be approved in order to continue selling our products in those countries. Because export control and economic sanctions laws and regulations are complex and constantly changing, we cannot ensure that laws and regulations may not be enacted, amended, enforced or interpreted in a manner materially impacting our ability to sell or distribute our products.

Our global regulatory environment is becoming increasingly stringent and unpredictable, which could increase the time, cost and complexity of obtaining regulatory approvals for our products. Several countries that did not have regulatory requirements for medical devices have established such requirements in recent years and other countries have expanded, or plan to expand, existing regulations. Certain regulators are requiring local clinical data in addition to global clinical data. While harmonization of global regulations has been pursued, requirements continue to differ significantly among countries. We expect that this global regulatory environment will continue to evolve, which could impact our ability to obtain future approvals for our products, or could increase the cost and time to obtain such approvals in the future. We cannot provide assurance that any new medical devices we develop will be approved in a timely or cost-effective manner, or approved at all.

Promotional Restrictions

Both before and after we release a product for commercial distribution, we have ongoing responsibilities under various laws and regulations governing medical devices. In addition to FDA regulatory requirements, the FDA and other U.S. regulatory bodies (including the Federal Trade Commission, the Office of the Inspector General of the Department of Health and Human Services, the Department of Justice and various state Attorneys General) monitor the manner in which we promote and advertise

our products. Although physicians are permitted to use their medical judgment to employ medical devices for indications other than those cleared or approved by the FDA, we are prohibited from promoting products for such "off-label" uses and can only market our products for cleared or approved uses.

Governmental Trade Regulations

The sale and shipment of our products and services across international borders, as well as the purchase of components and products from international sources, subjects us to extensive governmental trade regulations. A variety of laws and regulations apply to the sale, shipment and provision of goods, services and technology across international borders. Many countries control the export and re-export of goods, technology and services for public health, national security, regional stability, antiterrorism and other reasons. Some governments may also impose economic sanctions against certain countries, persons or entities. In certain circumstances, governmental authorities may require that we obtain an approval before we export or re-export goods, technology or services to certain destinations, to certain end-users and for certain end-uses. Because we are subject to extensive regulations in the countries in which we operate, we are subject to the risk that laws and regulations could change in a way that would expose us to additional costs, penalties or liabilities. These laws and regulations govern, among other things, our import and export activities.

We also sell and provide goods, technology and services to agents, representatives and distributors who may export such items to customers and end-users, and if these third parties violate applicable export control and economic sanctions laws and regulations when engaging in transactions involving our products, we may be subject to varying degrees of liability depending on the extent of our participation in the transaction. The activities of these third parties may cause disruption or delays in the distribution and sales of our products, or result in restrictions being placed on our international distribution and sales of products, which may materially impact our business activities.

Patient Privacy and Security Laws

Various laws worldwide protect the confidentiality of certain patient health information, including patient medical records, and restrict the use and disclosure of patient health information by healthcare providers. Privacy standards in Europe and Asia are becoming increasingly strict, enforcement action and financial penalties related to privacy in the EU are growing, and new laws and restrictions are being passed. The management of cross-border transfers of information among and outside of EU member countries is becoming more complex, which may complicate our clinical research activities, as well as product offerings that involve transmission or use of clinical data. We will continue our efforts to comply with those requirements and to adapt our business processes to those standards.

In the United States, the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), as amended by the Health Information Technology and Clinical Health Act ("HITECH") and their respective implementing regulations, including the final omnibus rule published on January 25, 2013, imposes specified requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to "business associates," defined as independent contractors or agents of covered entities that create, receive, maintain or transmit protected health information in connection with providing a service for or on behalf of a covered entity. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys new general authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways, thus complicating compliance efforts. We potentially operate as a business associate to covered entities in a limited number of instances. In those cases, the patient data that we receive may include protected health information, as defined under HIPAA. Enforcement actions can be costly and interrupt regular operations of our business. While we have not been named in any such actions, if a substantial breach or loss of data from our records were to occur, we could become a target of such litigation.

In the EU, Regulation 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data ("General Data Protection Regulation" or "GDPR") comes into force on 25 May 2018. The GDPR replaces Directive 95/46/EC ("Data Protection Directive"). While many of the principles of the GDPR reflect those of the Data Protection Directive, for example in relation to the requirements relating to the privacy, security and transmission of individually identifiable health information, there are a number of changes. In particular: (1) pro-active compliance measures are introduced, such as the requirement to carry out a Privacy Impact Assessment and to appoint a Data Protection Officer where health data is processed on a "large scale". Although "large scale" is not defined, it is likely that clinical trials involving substantial numbers of patients (or healthy volunteers if applicable) would mean that such requirements apply to LivaNova; and (2) the administrative fines that can be levied are significantly increased, the maximum being the higher of €20 million, or 4%, of the total worldwide annual turnover of the group in the previous financial year.

Cost Containment Initiatives

Government and private sector initiatives to limit the growth of healthcare costs, including price regulation, competitive pricing, bidding and tender mechanics, coverage and payment policies, comparative effectiveness of therapies, technology assessments, and managed-care arrangements, are continuing in many countries where LivaNova does business. These changes are causing the marketplace to put increased emphasis on the delivery of more cost-effective medical devices and therapies.

Government programs, private healthcare insurance and managed-care plans have attempted to control costs by limiting the extent of coverage or amount of reimbursement available for particular procedures or treatments, tying reimbursement to outcomes, shifting to population health management, and other mechanisms designed to constrain utilization and contain costs. Hospitals, which purchase implants, are also seeking to reduce costs through a variety of mechanisms, including, for example, creating centralized purchasing functions that set pricing and in some cases limit the number of vendors that can participate in the purchasing program. Hospitals are also aligning their interests with that of physicians through employment and other arrangements, such as gainsharing, whereby a hospital agrees with physicians to share certain realized cost savings resulting from the physicians' collective change in practice patterns, such as standardization of devices where medically appropriate, and participation in affordable care organizations. Such alignment has created increasing levels of price sensitivity among customers for our products.

Some third-party payers must also approve coverage and set reimbursement levels for new or innovative devices or therapies before they will reimburse healthcare providers who use the medical devices or therapies. Even though a new medical device may be cleared for commercial distribution, we may find limited demand for the device until coverage and sufficient reimbursement levels have been obtained from governmental and private third-party payers. In addition, some private third-party payers require that certain procedures or the use of certain products be authorized in advance as a condition of coverage.

In the United States, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, the "Affordable Care Act"), for example, has the potential to substantially change healthcare financing and delivery by both governmental and private insurers, and significantly impact the pharmaceutical and medical device industries. The Affordable Care Act imposed, among other things, an annual excise tax of 2.3% on any entity that manufactures or imports medical devices offered for sale in the United States. Due to subsequent legislative amendments the excise tax has been suspended for the period January 1, 2016 to December 31, 2019, and, absent further legislative action, will be reinstated starting January 1, 2020.

In addition, the Affordable Care Act provided incentives to programs that increase the federal government's comparative effectiveness research. The Affordable Care Act also implemented payment system reforms including a national pilot program on payment bundling to encourage hospitals, physicians and other providers to improve the coordination, quality and efficiency of certain healthcare services through bundled payment models.

International examples of cost containment initiatives and healthcare reforms in markets significant to our business include Japan, where the government reviews reimbursement rate benchmarks every two years. Such reviews may significantly reduce reimbursement for procedures using our medical devices or result in the denial of coverage for those procedures.

As a result of our manufacturing efficiencies, cost controls and other cost-savings initiatives, we believe we are well-positioned to respond to changes resulting from this worldwide trend toward cost containment; however, uncertainty remains as to the nature of any future legislation or other reforms, making it difficult for LivaNova to predict the potential impact of cost-containment trends on future operating results.

Applicability of Anti-Corruption Laws and Regulations

Our worldwide business is subject to the U.S. Foreign Corrupt Practices Act of 1977 (the "FCPA"), the United Kingdom Bribery Act of 2010 (the "UK Bribery Act") and other anti-corruption laws and regulations applicable in the jurisdictions where we operate. The FCPA can be used to prosecute companies in the United States for arrangements with physicians, or other parties outside the United States, if the physician or party is a government official of another country and the arrangement violates the law of that country. The UK Bribery Act prohibits both domestic and international bribery, as well as bribery across both public and private sectors There are similar laws and regulations applicable to LivaNova outside the United States, all of which are subject to evolving interpretations. For additional information, please refer to Item 1A. Risk Factors of this Annual Report on Form 10-K, under the sections entitled " *We are subject to substantial post-market government regulation and any adverse regulatory action may materially adversely affect our financial condition and business operations" and "Our failure to comply with rules relating to healthcare fraud and abuse, false claims and privacy and security laws may subject us to penalties and adversely impact our reputation and business operations."*

Health Care Fraud and Abuse Laws

We are also subject to U.S. federal and state government healthcare regulation and enforcement and government regulations in non-U.S. countries in which it conducts its business.

The Anti-Kickback Statute is subject to evolving interpretations. In the past, the U.S. government has enforced the Anti-Kickback Statute to reach large settlements with healthcare companies based on sham consulting and other financial arrangements with physicians. The majority of states in the U.S. also have anti-kickback laws which establish similar prohibitions, and in some cases may apply to items or services reimbursed by any third-party payor, including commercial insurers.

Additionally, violations of the False Claims Act can result in significant monetary penalties and treble damages. The federal government is using the False Claims Act, and the accompanying threat of significant financial liability, in its investigation and prosecution of device and biotechnology companies throughout the country, for example, in connection with the promotion of products for unapproved uses and other sales and marketing practices. The government has obtained multi-million and multi-billion dollar settlements under the False Claims Act, in addition to individual criminal convictions under applicable criminal statutes. Given the significant size of actual

and potential settlements, we anticipate that the government will continue to devote substantial resources to investigating healthcare providers' and manufacturers' compliance with applicable fraud and abuse laws.

HIPAA includes federal criminal statutes that prohibit, among other actions, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors; knowingly and willfully embezzling or stealing from a healthcare benefit program; willfully obstructing a criminal investigation of a healthcare offense; and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

There has also been a recent trend of increased federal and state regulation of payments made to physicians and other healthcare providers. The Affordable Care Act, among other things, imposes additional reporting requirements on certain device manufacturers for payments made by them to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Failure to submit required information may result in civil monetary penalties of up to an aggregate of $150,000 per year (or up to an aggregate of $1 million per year for "knowing failures"), for all payments, transfers of value, or ownership or investment interests that are not timely, accurately and completely reported in an annual submission. Device manufacturers must submit reports to the government by the 90th day of each calendar year. Certain states also mandate implementation of compliance programs, impose restrictions on device manufacturer marketing practices and/or require the tracking and reporting of gifts, compensation and other remuneration to physicians.

The shifting commercial compliance environment and the need to build and maintain robust systems to comply with different compliance and/or reporting requirements in multiple jurisdictions increase the possibility that a healthcare company may violate one or more of the requirements. If our operations are found to be in violation of any of such laws or any other governmental regulations that apply to it, we may be subject to penalties, including, without limitation, civil and criminal penalties, damages, fines, the curtailment or restructuring of its operations, exclusion from participation in federal and state healthcare programs and imprisonment, any of which could adversely affect our ability to operate our business and our financial results.

Environmental Health and Safety Laws

We are also subject to various environmental health and safety laws and regulations worldwide. Like other medical device companies, our manufacturing and other operations involve the use and transportation of substances regulated under environmental health and safety laws including those related to the transportation of hazardous materials. To the best of our knowledge at this time, we do not expect that compliance with environmental protection laws will have a material impact on our consolidated results of operations, financial position or cash flows.

Working Capital Practices

Our goal is to carry sufficient levels of inventory to ensure adequate supply of raw materials from suppliers and meet the product delivery needs of our customers. To meet the operational demands of our customers, we also provide payment terms to customers in the normal course of business and rights to return product under warranty.

Employees

As of December 31, 2017, we employed more than 4,500 employees worldwide, inclusive of approximately 900 employed by our CRM Business Franchise. Our employees are vital to our success, and we are engaged in an ongoing effort to identify, hire, manage and maintain the talent necessary to meet our business objectives. We believe that we have been successful in attracting and retaining qualified personnel in a highly competitive labor market due, in large part, to our competitive compensation and benefits and our rewarding work environment, fostering employee professional training and development and providing employees with opportunities to contribute to our continued growth and success.

Seasonality

For all product segments, the number of medical procedures incorporating our product sales is generally lower during the summer months due to summer vacation schedules. This is particularly relevant to European countries.

Item 1A Risk Factors

Our business and assets are subject to varying degrees of risk and uncertainty. An investor should carefully consider the risks described below, as well as other information contained in this Annual Report on Form 10-K and in our other filings with the SEC. Based on the information currently known to us, we believe the following information identifies the most significant risk factors affecting us, but the below risks and uncertainties are not the only ones related to our businesses and are not necessarily listed in the order of their significance. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Global healthcare policy changes, including U.S. healthcare reform legislation, may have a material adverse effect on us.

In response to perceived increases in healthcare costs, there have been and continue to be proposals by governments, regulators and third-party payers to control these costs. The adoption of some or all of these proposals could have a material adverse effect on our financial position and results of operations. These proposals have resulted in efforts to enact U.S. healthcare system reforms that may lead to pricing restrictions, limits on the amounts of reimbursement available for our products and could limit the acceptance and availability of our products.

In the United States, the federal government enacted legislation, including the Affordable Care Act of 2010, to overhaul the nation's healthcare system. Among other things, the Affordable Care Act:

- imposes an annual excise tax of 2.3% on any entity that manufactures or imports medical devices offered for sale in the United States. Due to subsequent legislative amendments, the excise tax has been suspended for the period January 1, 2016 to December 31, 2019, and absent further legislative action, will be reinstated starting January 1, 2020; and
- implements payment system reforms including a national pilot program on payment bundling to encourage hospitals, physicians and other providers to improve the coordination, quality and efficiency of certain healthcare services through bundled payment models.

The Affordable Care Act also focuses on a number of Medicare provisions aimed at decreasing costs. It is uncertain at this point what unintended consequences these provisions will have on patient access to new technologies. The Medicare provisions include value-based payment programs, increased funding of comparative effectiveness research, reduced hospital payments for avoidable readmissions and hospital-acquired conditions, and pilot programs to evaluate alternative payment methodologies that promote care coordination (such as bundled physician and hospital payments). Additionally, the law includes a reduction in the annual rate of inflation for hospitals that began in 2011 and the establishment of an independent payment advisory board to recommend ways of reducing the rate of growth in Medicare spending beginning in 2014. We cannot predict what healthcare programs and regulations will be implemented at the global level or the U.S. federal or state level, or the effect of any future legislation or regulation; however, any changes that lower reimbursement for our products or reduce medical procedure volumes could adversely affect our business and results of operations.

In 2015, the Italian Parliament introduced new rules for entities that supply goods and services to the Italian National Healthcare System. This healthcare law impacts the business and financial reporting of medical technology sector companies that sell medical devices in Italy. A key provision of the law is a 'payback' measure, requiring companies selling medical devices in Italy to make payments to the Italian state if medical device expenditures exceed regional maximum ceilings. Companies are required to make payments equal to a percentage of expenditures exceeding maximum regional caps. There is still considerable uncertainty about how the law will operate and what the exact timeline will be for finalization. Our current assessment of the Italian Medical Device Payback legislation involves significant judgment regarding the expected scope and actual implementation terms of the measure as the latter have not been clarified to date by Italian authorities. We account for the estimated cost of the Medical Device Payback as a deduction from revenue.

The success and continuing development of our products depend on maintaining strong relationships with physicians and healthcare professionals.

If we fail to maintain our working relationships with physicians, our products may not be developed and marketed in line with the needs and expectations of the professionals who use and support our products. Physicians assist us as researchers, marketing consultants, product consultants, inventors and public speakers, and we rely on these professionals to provide us with considerable knowledge and experience. If we are unable to maintain these strong relationships, the development and marketing of our products could suffer, which could have a material adverse effect on our consolidated financial condition and results of operations.

We may be unable to obtain and maintain adequate third-party reimbursement on our products, which could have a significant negative impact on our future operating results.

Our ability to commercialize our products is dependent, in large part, on whether third-party payors, including private healthcare insurers, managed care plans, governmental programs and others agree to cover the costs and services associated with our products and related procedures in the United States and internationally.

Our products are purchased principally by healthcare providers that typically bill various third-party payors, such as governmental programs (e.g., Medicare and Medicaid in the United States) and private insurance plans for the healthcare services provided to their patients. The ability of customers to obtain appropriate reimbursement for their services and the products they provide is critical to the success of medical technology companies. The availability of adequate reimbursement affects the decision as to which procedures are performed, which products are purchased and what prices customers are willing to pay. After we develop a promising new product, we may find limited demand for the product if reimbursement approval is not obtained from private and governmental third-party payors. In addition, periodic changes to reimbursement methodologies could have an adverse impact on our business.

Outside the United States, reimbursement systems vary significantly by country. Many foreign markets have government-managed healthcare systems that govern reimbursement for medical devices and procedures. Additionally, some foreign reimbursement systems provide for limited payments in a given period and, as a consequence, result in extended payment periods. If adequate levels of reimbursement from third-party payors outside of the United States are not obtained, international sales of our products may decline.

Patient confidentiality and federal and state privacy and security laws and regulations in the United States and around the world may adversely impact our selling model.

U.S. HIPAA establishes federal rules protecting the privacy and security of personal health information. The privacy and security rules address the use and disclosure of individual healthcare information and the rights of patients to understand and control how such information is used and disclosed. HIPAA provides both civil and criminal fines and penalties for covered entities or business associates that fail to comply. If we fail to comply with the applicable regulations, we could suffer civil penalties up to or exceeding $50,000 per violation, with a maximum of $1.5 million for multiple violations of an identical requirement during a calendar year and criminal penalties with fines up to $250,000 and potential imprisonment.

In addition to HIPAA, virtually every U.S. state has enacted one or more laws to safeguard privacy, and these laws vary significantly from state to state and change frequently. Because the operation of our business involves the collection and use of substantial amounts of "protected health information," we endeavor to conduct our business as a "covered entity" under HIPAA, and consistent with state privacy laws, we obtain HIPAA-compliant patient authorizations where required to support our use and disclosure of patient information. We also sometimes act as a "business associate" for a covered entity. Regardless, the Office for Civil Rights of the Department of Health and Human Services or another government enforcement agency may determine that our business model or operations are not in compliance with HIPAA or other related state laws, which could subject us to penalties, severely limit our ability to market and sell our products under our existing business model and harm our business growth and consolidated financial position.

The EU's GDPR, in force from 25 May 2018, protects the privacy and security of personal health information relating to individuals within the EU. Like HIPAA, GDPR addresses the use and disclosure of individual healthcare information and the rights of patients to understand and control how such information is used and disclosed. It will also subject us to a rigorous pro-active compliance regime. If we fail to comply with GDPR, we could be sued for compensation by individuals who have suffered material or non-material damage and could suffer administrative "effective, proportionate and dissuasive" administrative fines up to the higher of $204 million, or 4%, of the total worldwide annual turnover of the group in the previous financial year. We may also be subject to criminal sanctions.

Cyber-attacks or other disruptions to our information technology systems could lead to reduced revenue, increased costs, liability claims, fines or harm to our competitive position.

We are increasingly dependent on sophisticated information technology systems to operate our business, and certain of our products include integrated software and information technology. We rely on information technology systems to collect and process customer orders, manage product manufacturing and shipping, and support regulatory compliance, and we routinely process, store, and transmit large amounts of data, including sensitive personal information, protected health information, and business information. Many of our products incorporate software and information technology that allow patients and physicians to be connected and collect data regarding a patient and the therapy he or she is receiving, or that otherwise allow the products or services to operate as intended. We could experience attempted or actual interference with the integrity of, and interruptions in, our technology systems, as well as data breaches. We could also experience attempted or actual interference with the integrity of our products and data. These incidents could materially harm our business and our reputation.

As is the case with other large enterprises, the size and complexity of our products and information technology systems can make them vulnerable to cyber-attacks, breakdown, interruptions, destruction, loss or compromise of data, obsolescence or incompatibility among systems, or other significant disruptions. Unauthorized persons routinely attempt to access our products or systems in order to disrupt, disable or degrade such products or services, or to obtain proprietary or confidential information. Such unauthorized access or interference with our products or services, if successful, could create issues with product functionality, which could pose a risk to patient safety, and a risk of product recall or field activity.

We have programs, processes and technologies in place to attempt to prevent, detect, contain, respond to and mitigate security-related threats and potential incidents. We undertake ongoing improvements to our systems, connected devices and

information-sharing products in order to minimize vulnerabilities, in accordance with industry and regulatory standards; however, because the techniques used to obtain unauthorized access change frequently and can be difficult to detect, and because the integration of two global cross-border companies takes time and entails risks pertaining to the integration of disparate information technology systems. anticipating, identifying or preventing these intrusions or mitigating them if and when they occur is challenging and makes us more vulnerable to cyber-attacks than other companies not similarly situated.

We also rely on third-party vendors to supply and/or support certain aspects of our information technology systems. Third-party systems may contain defects in design or manufacture or other problems that could result in system disruption or could unexpectedly compromise the information security of our own systems, and we are dependent on these third parties to provide reliable systems and software and to deploy appropriate security programs to protect their systems.

In addition, we continue to grow in part through new business acquisitions. As a result of acquisitions, we may face risks due to implementation, modification, or remediation of controls, procedures, and policies relating to data privacy and cybersecurity at the acquired company. We continue to consolidate and over time integrate the number of systems we operate, and to upgrade and expand our information system capabilities for stable and secure business operations.

If we are unable to maintain secure, reliable information technology systems and prevent disruptions, outages, or data breaches, we may suffer regulatory consequences in addition to business consequences. Our worldwide operations mean that we are subject to laws and regulations, including data protection and cyber-security laws and regulations, in many jurisdictions. For example, if we are in breach of the GDPR's requirement that we ensure a level of security, both in terms of technology and other organizational measures, appropriate to the risk that the confidentiality, integrity or availability of personally identifiable data is compromised, we could be subject to fines of up to $12.0 million or 2% of our annual worldwide group turnover, whichever is higher. Despite programs to comply with such laws and regulations, there is no guarantee that we will avoid enforcement actions by governmental bodies. Enforcement actions may be costly and interrupt regular operations of our business. In addition, there is a trend of civil lawsuits and class actions relating to breaches of consumer data other cyber-attacks. While we have not been named in any such lawsuits, if a substantial breach or loss of data occurs, we could become a target of civil litigation or government enforcement actions.

Our information technology systems require an ongoing commitment of significant resources to maintain, protect, and enhance existing systems and to develop new systems to keep pace with continuing changes in information processing technology, evolving legal and regulatory standards, the increasing need to protect patient and customer information, and the information technology needs associated with our changing products and services. There can be no assurance that our process of consolidating, protecting, upgrading and expanding our systems and capabilities, continuing to build security into the design of our products, and developing new systems to keep pace with continuing changes in information processing technology will be successful or that additional systems issues will not arise in the future. Any significant breakdown, intrusion, interruption, corruption, or destruction of these systems, as well as any data breaches, could have a material adverse effect on our business. If our information technology systems, products or sensitive data are compromised, patients or employees could be exposed to financial or medical identity theft or suffer a loss of product functionality, and we could lose existing customers, have difficulty attracting new customers, have difficulty preventing, detecting, and controlling fraud, be exposed to the loss or misuse of confidential information, have disputes with customers, physicians, and other health care professionals, suffer regulatory sanctions or penalties under federal laws, state laws, or the laws of other jurisdictions, experience increases in operating expenses or an impairment in our ability to conduct our operations, incur expenses or lose revenues as a result of a data privacy breach, product failure, information technology outages or disruptions, or suffer other adverse consequences including lawsuits or other legal action and damage to our reputation.

We are subject to extensive and dynamic medical device regulation, which may impede or hinder the approval or sale of our products and in some cases, may ultimately result in an inability to obtain approval of certain products or may result in the recall or seizure of previously approved products.

Our medical device products and operations are subject to extensive regulation by the FDA and various other federal, state and foreign government authorities. Government regulation of medical devices is meant to assure their safety and effectiveness and includes regulation of, among other things, design, development and manufacturing; clinical studies; product safety; pre-market clearance and approval; marketing, sales and distribution; reimbursement; and post-market surveillance. The pathway to obtaining clearance from the FDA and comparable agencies in foreign countries for new products is described above in "Item 1. Business - Government Regulation and Other Considerations." Such processes can take a significant amount of time; require the expenditure of substantial resources; involve rigorous pre-clinical and clinical testing, as well as increased post-market surveillance; require changes to products; and result in limitations on the indicated uses of products.

In addition, exported devices are subject to the regulatory requirements of each country to which the device is exported. Some countries do not have medical device regulations, but in most foreign countries, medical devices are regulated. Frequently, regulatory approval may first be obtained in a foreign country prior to application in the U.S. due to differing regulatory requirements; however, other countries, such as China, for example, require approval in the country of origin or legal

manufacturer as a condition for approval in that country. Most countries outside of the U.S. require that product approvals be renewed or recertified on a regular basis, generally every four to five years. The renewal or recertification process requires that we evaluate any device changes and any new regulations or standards relevant to the device and conduct appropriate testing to document continued compliance. Where renewal or recertification applications are required, they may need to be renewed and/or approved in order to continue selling our products in those countries. There can be no assurance that we will receive the required approvals for new products or modifications to existing products on a timely basis or that any approval will not be subsequently withdrawn or conditioned upon extensive post-market study requirements.

Our global regulatory environment is becoming increasingly stringent, and unpredictable, which could increase the time, cost and complexity of obtaining regulatory approvals for our products, as well as the clinical and regulatory costs of supporting those approvals. Several countries that did not have regulatory requirements for medical devices have established such requirements in recent years and other countries have expanded on existing regulations. Certain regulators are exhibiting less flexibility and are requiring local preclinical and clinical data in addition to global data. While harmonization of global regulations has been pursued, requirements continue to differ significantly among countries. We expect this global regulatory environment will continue to evolve, which could impact our ability to obtain future approvals for our products, or could increase the cost and time to obtain such approvals in the future.

The FDA and other worldwide regulatory agencies actively monitor compliance with local laws and regulations through review and inspection of design and manufacturing practices, recordkeeping, reporting of adverse events, labeling and promotional practices. The FDA can ban certain medical devices; detain or seize adulterated or misbranded medical devices; order repair, replacement or refund of these devices; and require notification of health professionals and others with regard to medical devices that present unreasonable risks of substantial harm to the public health. The FDA can take action against a company that promotes "off-label" uses. Any adverse regulatory action, depending on its magnitude, may restrict a company from effectively marketing and selling its products, may limit a company's ability to obtain future premarket clearances or approvals, and could result in a substantial modification to the company's business practices and operations. International sales of U.S. manufactured medical devices that are not approved by the FDA for use in the U.S., or that are banned or deviate from lawful performance standards, are subject to FDA export requirements.

Regulations regarding the development, manufacture and sale of medical devices are evolving and subject to future change. We cannot predict what impact, if any, those changes might have on our business. Failure to comply with regulatory requirements could have a material adverse effect on our business, financial condition and results of operations. Later discovery of previously unknown problems with a product or manufacturer could result in fines, delays or suspensions of regulatory clearances or approvals, seizures or recalls of products, physician advisories or other field actions, operating restrictions and/or criminal prosecution. We may also initiate field actions as a result of a failure to strictly comply with our internal quality policies. The failure to receive product approval clearance on a timely basis, suspensions of regulatory clearances, seizures or recalls of products, physician advisories or other field actions, or the withdrawal of product approval by the FDA or by comparable agencies in foreign countries could have a material adverse effect on our business, financial condition or results of operations.

Modifications to our marketed products may require new clearances or approvals, and may require us to cease marketing or recall the modified products until required clearances or approvals are obtained.

An element of our strategy is to continue to upgrade our products, add new features and expand clearance or approval of our current products to new indications. In the United States, any modification to a PMA-approved device generally requires an additional approval by the FDA. Similarly, any modification to a 510(k)-cleared device that could significantly affect its safety or efficacy, or that would constitute a major change in its intended use, technology, materials, packaging and certain manufacturing processes, may require a new 510(k) clearance or, possibly, PMA approval. The FDA requires every manufacturer to make the determination regarding the need for a new 510(k) clearance or PMA approval in the first instance; but the FDA may (and often does) review the manufacturer's decision, and, where the FDA does not agree, may retroactively require the manufacturer to submit a 510(k) or PMA, and may require a recall of the affected device until clearance or approval is obtained. We have made modifications to our products in the past and may make additional modifications in the future that we believe do not or will not require additional clearances or approvals. No assurance can be given that the FDA will agree with any of our decisions not to seek 510(k) clearance or PMA approval.

If the FDA requires us to cease marketing and to recall a modified device until we obtains a new 510(k) clearance or PMA approval, our business, financial condition, operating results and future growth prospects could be materially adversely affected. Any recall or FDA requirement that we seek additional clearances or approvals could result in significant delays, fines, increased costs associated with modification of a product, loss of revenue and potential operating restrictions imposed by the FDA.

Furthermore, the FDA's ongoing review of the 510(k) clearance process may make it more difficult for us to make modifications to our previously cleared products, either by imposing stricter requirements as to when a new 510(k) notification for a modification to a previously cleared product must be submitted, or by applying more onerous review criteria to such submissions.

If our marketed medical devices are defective or otherwise pose safety risks, the FDA and similar foreign governmental authorities could require their recall, or we may initiate a recall of our products voluntarily.

The FDA and similar foreign governmental authorities may require the recall of commercialized products in the event of material deficiencies or defects in design or manufacture or in the event that a product poses an unacceptable risk to health. Manufacturers, on their own initiative, may recall a product with material deficiency. We have initiated voluntary product recalls in the past. A future recall announcement in the United States, EEA or elsewhere could harm our reputation with customers and negatively affect our revenue.

A government-mandated recall or voluntary recall by us or one of our sales agencies could occur as a result of an unacceptable risk to health, component failures, manufacturing errors, design or labeling defects or other deficiencies or issues. Recalls of any of our products would divert managerial and financial resources and have an adverse effect on our financial condition and operating results. Any recall could impair our ability to produce our products in a cost-effective and timely manner in order to meet our customers' demands. We also may be required to bear other costs or take other actions that may have a negative impact on our future revenue and our ability to generate profits. In the future, we may initiate voluntary withdrawal, removal or repair actions that we determine do not require notification of the FDA as a recall. If the FDA disagrees with our determinations, it could require us to report those actions as recalls. In addition, the FDA could take enforcement action for failing to report the recalls when they were conducted.

In addition, depending on the corrective action we take to redress a device's deficiencies or defects, the FDA may require, or we may decide, that we need to obtain new approvals or clearances for the device before we market or distribute the corrected device. Seeking such approvals or clearances may delay our ability to replace the recalled devices in a timely manner. Moreover, if we do not adequately address problems associated with our devices, we may face additional regulatory enforcement action, including FDA warning letters, product seizure, injunctions, administrative penalties, or civil or criminal fines.

In the EEA, our European operations must comply with the EU Medical Device Vigilance System, the purpose of which is to improve the protection of health and safety of patients, users and others by reducing the likelihood of reoccurrence of incidents related to the use of a medical device. Under this system, incidents must be reported to the Competent Authorities of the EEA Member States. An incident is defined as any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in labeling or instructions that may, directly or indirectly, lead or have led to death or serious health deterioration of a patient. Incidents are evaluated by the EEA Competent Authorities to whom they have been reported, and where appropriate, information is disseminated between them in the form of National Competent Authority Reports ("NCARs"). The Medical Device Vigilance System is further intended to facilitate a direct, early and harmonized implementation of Field Safety Corrective Actions ("FSCAs"), across the EEA Member States where the device is in use. An FSCA is an action taken by a manufacturer to reduce a risk of death or serious deterioration in the state of health associated with the use of a medical device that is already placed on the market. An FSCA may include the recall, modification, exchange, destruction or retrofitting of the device. FSCAs must be communicated by the manufacturer or its legal representative to its customers and/or to the end users of the device through Field Safety Notices.

If our products cause or contribute to a death or a serious injury, or malfunction in certain ways, we will be subject to medical device reporting regulations, which can result in voluntary corrective actions or agency enforcement actions.

Under the FDA MDR regulations, we are required to report to the FDA any incident in which our products have or may have caused or contributed to a death or serious injury or in which our product malfunctioned and, if the malfunction were to recur, would likely cause or contribute to death or serious injury. If we fail to report these events to the FDA within the required timeframes, or at all, the FDA could take enforcement action against us. Any adverse event involving our products could result in future voluntary corrective actions, such as recalls or customer notifications, or agency action, such as inspection, mandatory recall or other enforcement action. Any corrective action, whether voluntary or involuntary, or litigation, will require the dedication of our time and capital, distract management from operating the business, and may harm our reputation and financial results.

Product liability claims could adversely impact our consolidated financial condition and our earnings and impair our reputation.

Our business exposes us to potential product liability risks that are inherent in the design, manufacture and marketing of medical devices. In addition, many of the medical devices we manufacture and sell are designed to be implanted in the human body for long periods of time. Component failures, manufacturing defects, design flaws or inadequate disclosure of product-related risks or product-related information with respect to these or other products we manufacture or sell could result in an unsafe condition or injury to, or death of, a patient. The occurrence of such an event could result in product liability claims or a recall of, or safety alert relating to, one or more of our products. We have elected to self-insure with respect to a portion of our product liability risks and hold global insurance policies in amounts we believe are adequate to cover future losses. Product liability claims or product recalls in the future, regardless of their ultimate outcome, could have a material adverse effect on our business and reputation and on our ability to attract and retain customers for our products, and

losses from product liability claims in the future could exceed our product liability insurance coverage and lead to a material adverse effect on our financial condition.

We currently are involved in litigation that could adversely affect our business and financial results, divert management's attention from our business, and subject us to significant liabilities.

As described under "Note 12. Commitments and Contingencies - Litigation" in our consolidated financial statements included in this Annual Report on Form 10-K, we are involved in various litigation, which may adversely affect our financial condition and may require us to devote significant resources to our defense of these claims.

Such litigation involves a class action complaint in the U.S. District Court for the Middle District of Pennsylvania, federal multi-district litigation in the U.S. District Court for the Middle District of Pennsylvania and cases in various state courts and jurisdictions outside the U.S. relating to our 3T heater-cooler product. As of February 27, 2017, we are involved in approximately 110 claims worldwide, with the majority of the claims in various federal or state courts throughout the United States. The complaints generally seek damages and other relief based on theories of strict liability, negligence, breach of express and implied warranties, failure to warn, design and manufacturing defect, fraudulent and negligent misrepresentation/concealment, unjust enrichment, and violations of various state consumer protection statutes.

Although we are defending these matters vigorously, we cannot predict with certainty the outcome or effect of any claim or other litigation matter, and there can be no assurance as to the ultimate outcome of any litigation or proceeding. Litigation may have a material adverse effect on us because of potential adverse outcomes, defense costs, the diversion of our management's resources, availability of insurance coverage and other factors.

Our insurance policies may not be adequate to cover future losses.

Our insurance policies (including general and products liability) provide insurance in such amounts and against such risks we have reasonably determined to be prudent in accordance with industry practices or as is required by law or regulation. Although, based on historical loss trends, we believe that our insurance coverage will be adequate to cover future losses, we cannot guarantee that this will remain true. Historical trends may not be indicative of future losses, and losses from unanticipated claims could have a material adverse impact on our consolidated earnings, financial condition, and/or cash flows.

Our manufacturing operations require us to comply with the FDA's and other governmental authorities' laws and regulations regarding the manufacture and production of medical devices, which is costly and could subject us to enforcement action.

We and certain of our third-party manufacturers are required to comply with the FDA's current Good Manufacturing Practice ("GMP") requirements, as embodied in the QSR, which covers the design, testing, production, control, quality assurance, labeling, packaging, sterilization, storage and shipping of medical device products in the United States. We and certain of our suppliers also are subject to the regulations of foreign jurisdictions regarding the manufacturing process for products marketed outside of the United States. The FDA enforces the QSR through periodic announced (routine) and unannounced (for cause or directed) inspections of manufacturing facilities, during which the FDA may issue Forms FDA-483 listing inspectional observations which, if not addressed to the FDA's satisfaction, can result in further enforcement action. Similar inspections are carried out in the EEA by Notified Bodies and EEA Competent Authorities. Our failure, or the failure of one of our suppliers, to comply with applicable statutes and regulations administered by the FDA and other regulatory bodies, or the failure to timely and adequately respond to any adverse inspectional observations or product safety issues could result in:

- untitled letters, warning letters, fines, injunctions or consent decrees;
- customer notifications or repair, replacement, refund, recall, detention or seizure of products;
- operating restrictions or partial suspension or total shutdown of production;
- refusal to grant or delay in granting 510(k) clearance or PMA approval of new products or modified products;
- withdrawing 510(k) clearances or PMA approvals that have already been granted;
- refusal to grant export approval for our products; or
- civil penalties or criminal prosecution.

Any of these actions could impair our ability to produce our products in a cost-effective and timely manner in order to meet customers' demands. We also may be required to bear other costs or take other actions that may have a negative impact on our future revenue and ability to generate profits. Furthermore, our key component suppliers may not currently be or may not continue to be in compliance with all applicable regulatory requirements, which could result in failure to produce products on a timely basis or in the required quantities, if at all.

Quality problems with our processes, goods, and services could harm our reputation for producing high-quality products and erode our competitive advantage, sales, and market share.

Quality is extremely important to us and our customers due to the serious and costly consequences of product failure. Our quality certifications are critical to the marketing success of our goods and services. If we fail to meet these standards, our reputation could be damaged, we could lose customers, and our revenue and results of operations could decline. Aside from specific customer standards, our success depends generally on our ability to manufacture to exact tolerances precision-engineered components, subassemblies, and finished devices from multiple materials. If our components fail to meet these standards or fail to adapt to evolving standards, our reputation as a manufacturer of high-quality components will be harmed, our competitive advantage could be damaged, and we could lose customers and market share.

We are subject to substantial post-market government regulation and any adverse regulatory action may materially adversely affect our financial condition and business operations.

Our medical devices remain subject to regulation by numerous government agencies following clearance or approval, including the global device regulatory bodies. To varying degrees, each of these agencies requires us to comply with laws and regulations governing manufacturing, labeling, marketing, distribution, reporting, importing and exporting of our medical devices. In recent years, the FDA in particular has significantly increased its oversight of companies subject to its regulations, including medical device companies, by hiring new investigators and stepping up inspections of manufacturing facilities. The FDA has recently also significantly increased the number of warning letters issued to companies.

Device manufacturers are permitted to promote products solely for the uses and indications set forth in the approved product labeling. A number of enforcement actions have been taken against manufacturers that promote products for "off-label" uses, including actions alleging that federal healthcare program reimbursement of products promoted for "off-label" uses are false and fraudulent claims to the government. The failure to comply with "off-label" promotion restrictions can result in significant administrative obligations and costs, and potential penalties from, and/or agreements with, the federal government.

We use many distributors, agents and independent sales representatives in certain territories and thus rely on their compliance with applicable laws and regulations, such as the FCPA, the U.S. Anti-Kickback Statute ("Anti-Kickback Statute"), the U.S. False Claims Act ("False Claims Act"), the U.S. Sunshine Act, similar laws in countries located outside the United States and other applicable federal, state or applicable international laws. If a global regulatory body were to conclude that we are not in compliance with applicable laws or regulations, or that any of our medical devices are ineffective or pose an unreasonable health risk, it could ban the medical devices, detain or seize adulterated or misbranded medical devices, order a recall, repair, replacement, or refund of the devices, refuse to grant pending pre-market approval applications or require certificates of foreign governments for exports, and/or require us to notify healthcare professionals and others that the devices present unreasonable risks of substantial harm to public health. The global device regulatory bodies may also impose operating restrictions on a company-wide basis, enjoin and/or restrain certain conduct resulting in violations of applicable law pertaining to medical devices, and assess civil or criminal penalties against, or recommend prosecution of, our officers, employees, or our company itself. Any adverse regulatory action, depending on its magnitude, may restrict us from effectively marketing and selling our products.

We are also subject to various environmental laws and regulations worldwide. Our operations involve the use of substances regulated under environmental laws, primarily those used in manufacturing and sterilization processes. We cannot provide assurance that a potential non-compliance with environmental protection laws and regulations will not have a material impact on our consolidated earnings, financial condition, and/or cash flows.

Finally, any governmental law or regulation imposed in the future may have a material adverse effect on us. From time to time, legislation is drafted and introduced that could significantly change the statutory provisions governing the clearance or approval, manufacture and marketing of medical devices. In addition, global regulatory bodies' regulations and guidance can be revised or reinterpreted in ways that may significantly affect our business and products. It is impossible to predict whether legislative changes will be enacted or regulations, guidance or interpretations changed, and what the impact of such changes, if any, may be.

Our failure to comply with rules relating to healthcare fraud and abuse, false claims and privacy and security laws may subject us to penalties and adversely impact our reputation and business operations.

Our devices and therapies are subject to regulation regarding quality and cost by various governmental agencies worldwide responsible for coverage, reimbursement and regulation of healthcare goods and services. In the United States, for example, federal government healthcare laws apply when a customer submits a claim for an item or service that is reimbursable under a U.S. federal government-funded healthcare program, such as Medicare or Medicaid. The principal U.S. federal laws implicated include:

- the Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or

indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs, such as the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the Anti-Kickback Statute or specific intent to violate it to have committed a violation; in addition, the government may assert that a claim including items or services resulting from a violation of the Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;

- federal civil and criminal false claims laws which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid or other federal third-party payors that are false or fraudulent. Actions under the False Claims Act can be brought by the Attorney General or as *qui-tam* actions by private individuals acting in the name of the government. Such private individuals, commonly known as "whistleblowers," may share in any amounts paid by the entity to the government in fines or settlement. When an entity is determined to have violated the False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus civil penalties for each separate false claim;
- the federal Civil Monetary Penalties Law, which prohibits, among other things, offering or transferring remuneration to a federal healthcare beneficiary that a person knows or should know is likely to influence the beneficiary's decision to order or receive items or services reimbursable by the government from a particular provider or supplier;
- federal criminal laws that prohibit executing a scheme to defraud any federal healthcare benefit program or making false statements relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it to have committed a violation;
- HIPAA, as amended by HITECH, which governs the conduct of certain electronic healthcare transactions and protects the security and privacy of protected health information. This is the same significant risk further described in the Annual Report Form 10-K, Item 1A, under the heading above *"Risk Factors: Patient Confidentiality and federal and state privacy and security laws and regulations in the United States may adversely impact our selling model"*;
- the U.S. Sunshine Act, which requires manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to the Centers for Medicare & Medicaid Services ("CMS") information related to payments or other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, and requires applicable manufacturers and group purchasing organizations to report annually to the government ownership and investment interests held by the physicians described above and their immediate family members and payments or other "transfers of value" to such physician owners. Manufacturers are required to submit reports to CMS by the 90th day of each calendar year. Failure to submit required information may result in civil monetary penalties of up to an aggregate of $150,000 per year (or up to an aggregate of $1 million per year for "knowing failures"), for all payments, transfers of value or ownership or investment interests that are not timely, accurately, and completely reported in an annual submission;
- the FCPA, which prohibits corporations and individuals from paying, offering to pay or authorizing the payment of anything of value to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in an official capacity;
- the UK Bribery Act, which prohibits both domestic and international bribery, as well as bribery across both public and private sectors; and bribery provisions contained in the German Criminal Code, which, pursuant to draft legislation being prepared by the German government, may make the corruption and corruptibility of physicians in private practice and other healthcare professionals a criminal offense; and
- analogous state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers; state laws that require device companies to comply with the industry's voluntary compliance guidelines and the applicable compliance guidance promulgated by the federal government or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require device manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

The risk of being found in violation of these laws is increased by the fact that many of them have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations. Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available under such laws, it is possible that some of our business activities, including our relationships with surgeons and other healthcare providers, some of whom recommend, purchase and/or prescribe our devices, group purchasing organizations and our independent sales agents and distributors, could be subject to challenge under one or more of such laws. We are also exposed to the risk that our employees, independent contractors, principal investigators, consultants, vendors, independent sales agents and distributors may engage in fraudulent or other illegal activity. While we have policies and procedures in place prohibiting such activity, misconduct by these parties could include, among other infractions or violations, intentional, reckless and/or negligent conduct or unauthorized activity that violates FDA regulations, including

those laws that require the reporting of true, complete and accurate information to the FDA, manufacturing standards, federal and state healthcare fraud and abuse laws and regulations, laws that require the true, complete and accurate reporting of financial information or data or other commercial or regulatory laws or requirements. It is not always possible to identify and deter misconduct by our employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations.

There are similar laws and regulations applicable to us outside the United States, all of which are subject to evolving interpretations. Global enforcement of anti-corruption laws, including but not limited to the UK Bribery Act, the Brazil Clean Companies Act, and continued enforcement in the Europe, Middle East and Asia Pacific has increased substantially in recent years, with more frequent voluntary self-disclosures by companies, aggressive investigations and enforcement proceedings by governmental agencies, and assessment of significant fines and penalties against companies and individuals. Our operations create the risk of unauthorized payments or offers of payments by one of our employees, consultants, sales agents, or distributors because these parties are not always subject to our control. It is our policy to implement safeguards to discourage these practices; however, our existing safeguards and any future improvements may prove to be less than effective, and our employees, consultants, sales agents, or distributors may engage in conduct for which we might be held responsible. Any alleged or actual violations of these regulations may subject us to government scrutiny, severe criminal or civil sanctions and other liabilities, including exclusion from government contracting or government healthcare programs, and could negatively affect our business, reputation, operating results, and financial condition. In addition, a governmental authority may seek to hold us liable for successor liability violations committed by any companies in which we invest or that we acquire.

If a governmental authority were to conclude that we are not in compliance with applicable laws and regulations, we and our officers and employees could also be subject to exclusion from participation as a supplier of product to beneficiaries. If we are excluded from participation based on such an interpretation it could adversely affect our reputation and business operations. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business.

While we believe we have a strong culture of compliance and adequate systems of control, and we seek continuously to improve our systems of internal controls and to remedy any weaknesses identified, there can be no assurance that the policies and procedures will be followed at all times or will effectively detect and prevent violations of the applicable laws by one or more of our employees, consultants, agents or partners and, as a result, we may be subject to penalties and material adverse consequences on our business, financial condition or results of operations.

Laws and/or collective bargaining agreements relating to employees may impact our flexibility to redefine and/or strategically reposition our activities.

In many of the countries where we operate, employees are covered by various laws and/or collective bargaining agreements that endow them, through their local or national representatives, with the right to be consulted in relation to specific issues, including the downsizing or closing of departments and staff reductions. The laws and/or collective bargaining agreements that are applicable to these agreements could have an impact on our flexibility, as they apply to programs to redefine and/or strategically reposition our activities. Our ability to implement staff downsizing programs or even temporary interruptions of employment relationships is predicated on the approval of government entities and the consent of labor unions. Union-organized work stoppages by employees could have a negative impact on our business.

We are substantially dependent on patent and other proprietary rights and failing to protect such rights or to be successful in litigation related to our rights or the rights of others may result in our payment of significant monetary damages and/or royalty payments, negatively impact our ability to sell current or future products, or prohibit us from enforcing its patent and other proprietary rights against others.

We operate in an industry characterized by extensive patent litigation. Physician customers have historically moved quickly to new products and new technologies. As a result, intellectual property rights, particularly patents and trade secrets, play a significant role in product development and differentiation; however, intellectual property litigation is inherently complex and unpredictable and appellate courts can overturn lower court decisions. Furthermore, as our business increasingly relies on technology systems and infrastructure, our intellectual property, other proprietary technology and other sensitive data are potentially vulnerable to loss, damage or misappropriation.

Competing parties in our industry frequently file multiple lawsuits to leverage patent portfolios across product lines, technologies and geographies and to balance risk and exposure between the parties. In some cases, several competitors are parties in the same proceeding, or in a series of related proceedings, or litigate multiple features of a single class of devices. These forces frequently drive settlement not only of individual cases, but also of a series of pending and potentially related and unrelated cases. In addition, although monetary and injunctive relief is typically sought, remedies and restitution are generally not determined until the conclusion of the proceedings. Accordingly, the outcomes of individual cases are difficult to time, predict or quantify.

Third parties have asserted, and may in the future assert, that our current and former product offerings infringe patents owned or licensed by them. We have similarly asserted, and may in the future assert, that products sold by our competitors infringe patents owned or licensed by us. Adverse outcomes in one or more of the proceedings against us could limit our ability to sell certain products in certain jurisdictions, or reduce our operating margin on the sale of these products and could have a material adverse effect on our financial condition, results of operations or liquidity.

We also rely on a combination of patents, trade secrets, and non-disclosure and non-competition agreements to protect our proprietary intellectual property, and we will continue to do so. While we intend to defend against any threats to our intellectual property, these patents, trade secrets, or other agreements may not adequately protect our intellectual property. Further, pending patent applications may not result in patents being issued to us. Patents issued to or licensed by us in the past or in the future may be challenged or circumvented by competitors and such patents may be found invalid, unenforceable or insufficiently broad to protect our technology and may limit our competitive advantage. Third parties could obtain patents that may require us to negotiate licenses to conduct our business, and the required licenses may not be available on reasonable terms or at all. We also rely on non-disclosure and non-competition agreements with certain employees, consultants, and other parties to protect, in part, trade secrets and other proprietary rights. We cannot be certain that these agreements will not be breached, that we will have adequate remedies for any breach, that others will not independently develop substantially equivalent proprietary information, or that third parties will not otherwise gain access to our trade secrets or proprietary knowledge.

In addition, the laws of certain countries in which we market our products are not uniform and may not protect our intellectual property rights equally. If we are unable to protect our intellectual property in particular countries, it could have a material adverse effect on our business, financial condition or results of operations.

Furthermore, our intellectual property, other proprietary technology and other sensitive data are potentially vulnerable to loss, damage or misappropriation from system malfunction, computer viruses, unauthorized access to our data or misappropriation or misuse thereof by those with permitted access, and other events. While we have invested to protect our intellectual property and other data, and continue to work diligently in this area, there can be no assurance that our precautionary measures will prevent breakdowns, breaches, cyber-attacks or other events. Such events could have a material adverse effect on our reputation, business, financial condition or results of operations.

Our research and development efforts rely on investments and investment collaborations, and we cannot guarantee that any previous or future investments or investment collaborations will be successful.

Our strategy to provide a broad range of therapies to restore patients to fuller, healthier lives requires a wide variety of technologies, products, and capabilities. The rapid pace of technological development in the medical industry and the specialized expertise required in different areas of medicine make it difficult for one company alone to develop a broad portfolio of technological solutions. As a result, we also rely on investments and investment collaborations to provide us access to new technologies both in areas served by our existing or legacy businesses as well as in new areas.

We expect to make future investments where we believe that we can stimulate the development of, or acquire new technologies and products to further our strategic objectives and strengthen our existing businesses. Investments and investment collaborations in and with medical technology companies are inherently risky, and we cannot guarantee that any of our previous or future investments or investment collaborations will be successful or will not materially adversely affect our consolidated earnings, financial condition and/or cash flows.

Our products are the subject of clinical studies conducted by us, our competitors, or other third parties, the results of which may be unfavorable, or perceived as unfavorable, and could have a material adverse effect on our business, financial condition, and results of operations.

As a part of the regulatory process of obtaining marketing clearance or approval for new products and modifications to or new indications for existing products, we conduct and participate in numerous clinical studies with a variety of study designs, patient populations, and trial endpoints. Unfavorable or inconsistent clinical data from existing or future clinical studies conducted by us, by our competitors, or by third parties, or the market's or global regulatory bodies' perception of this clinical data, may adversely impact our ability to obtain product clearances or approvals, our position in, and share of, the markets in which we participate, and our business, financial condition, and results of operations. Success in pre-clinical testing and early clinical studies does not always ensure that later clinical studies will be successful, and we cannot be sure that later studies will replicate the results of prior studies. Clinical studies must also be conducted in compliance with Good Clinical Practice ("GCP") requirements administered by the FDA and other foreign regulatory authorities, and global regulatory bodies may undertake enforcement action against us based on a failure to adhere to these requirements. Any delay or termination of our clinical studies will delay the filing of

product submissions and, ultimately, our ability to commercialize new products or product modifications. It is also possible that patients enrolled in clinical studies will experience adverse side effects that are not currently part of the product's profile, which could inhibit further marketing and development of such products.

Consolidation in the healthcare industry could have an adverse effect on our revenue and results of operations.

Many healthcare industry companies, including medical device companies, are consolidating to create new companies with greater market power. As the healthcare industry consolidates, competition to provide goods and services to industry participants will become more intense. These industry participants may try to use their market power to negotiate price concessions or reductions for medical devices that incorporate components we produce. Increasing pricing pressures as a result of industry consolidation could have an adverse effect on our revenue, results of operations, financial position and cash flows.

The global medical device industry is highly competitive and LivaNova may be unable to compete effectively.

In the product lines in which we compete, we face a mixture of competitors ranging from large manufacturers with multiple business lines to small manufacturers that offer a limited selection of specialized products. Development by other companies of new or improved products, processes, or technologies, as discussed above, may make our products or proposed products less competitive. In addition, we face competition from providers of alternative medical therapies such as pharmaceutical companies. We face increasing competition for our indication specific patents for certain products. Competitive factors include:

- product quality, reliability and performance;
- product technology;
- breadth of product lines and product services;
- ability to identify new market trends;
- customer support;
- price;
- capacity to recruit engineers, scientists and other qualified employees; and
- reimbursement approval from governmental payors and private healthcare insurance providers.

Shifts in industry market share can occur in connection with product issues, physician advisories, safety alerts, and publications about our products reflecting the importance of product quality, product efficacy, and quality systems in the medical device industry. In the current environment of managed care, consolidation among healthcare providers, increased competition, and declining reimbursement rates, we are increasingly required to compete on the basis of price. In order to continue to compete effectively, we must continue to create, invest in, or acquire advanced technology, incorporate this technology into our proprietary products, obtain regulatory approvals in a timely manner, and manufacture and successfully market our products. Additionally, we may experience design, manufacturing, marketing or other difficulties that could delay or prevent our development, introduction or marketing of new products or new versions of our existing products. As a result of such difficulties and delays, our development expenses may increase and, as a consequence, our results of operations could suffer.

Risks related to the reduction or interruption in supply and an inability to develop alternative sources for supply may adversely affect our manufacturing operations and related product sales.

We maintain manufacturing operations in six countries located throughout the world and purchase many of the components and raw materials used in manufacturing these products from numerous suppliers in various countries. Any problem affecting a supplier (whether due to external or internal causes) could have a negative impact on us.

In a few limited cases, specific components and raw materials are purchased from primary or main suppliers (or in some cases, a single supplier) for reasons related to quality assurance, cost-effectiveness ratio and availability. While we work closely with our suppliers to ensure supply continuity, we cannot guarantee that our efforts will always be successful. Moreover, due to strict standards and regulations governing the manufacture and marketing of our products, we may not be able to quickly locate new supply sources in response to a supply reduction or interruption, with negative effects on our ability to manufacture our products effectively and in a timely fashion.

We manufacture our products at production facilities in Italy, Germany, the United States, Canada, Brazil and Australia, all of which are exposed to the risk of production stoppages caused by exceptional or accidental events (fires, shutdowns of access roads, etc.) or natural calamities (floods, earthquakes, etc.). Even though we have implemented what we believe to be appropriate preventive actions and insurance coverage, the possibility that the occurrence of events of exceptional severity or duration could have an impact on our performance cannot be excluded.

Natural disasters, war, acts of terrorism and other events could adversely affect our future revenue and operating income.

Natural disasters (including pandemics), war, terrorism, labor disruptions and international conflicts, and actions taken by governmental entities or by our customers or suppliers in response to such events, could cause significant economic disruption and political and social instability in the areas in which we operate. These events could result in decreased demand for our products, adversely affect our manufacturing and distribution capabilities, or increase the costs for or cause interruptions in the supply of materials from our suppliers.

We are subject to the risks of international economic and political conditions.

Our international operations are subject to risks that are inherent in conducting business overseas and under foreign laws, regulations and customs. These risks include possible nationalization, exit from the European Union, expropriation, importation limitations, violations of U.S. or local laws, including, but not limited to, the U.S. FCPA, pricing restrictions, and other restrictive governmental actions. Following a referendum in June 2016 in which voters in the United Kingdom (UK) approved an exit from the EU for example, the UK government is expected to initiate a process to withdraw from the EU ("Brexit") and begin negotiating the terms of the UK's future relationship with the EU. A withdrawal could, among other outcomes, result in the deterioration of economic conditions, volatility in currency exchange rates, and increased regulatory complexities. Any significant changes in the competitive, political, legal, regulatory, reimbursement or economic environment where we conduct international operations may have a material impact on our business and our consolidated financial condition or results of operations.

Deterioration in the global economy could have a significant impact on our business. Customers and vendors may experience financial difficulties or be unable to borrow money to fund their operations, which may adversely impact their ability to purchase our products or to pay for our products on a timely basis, if at all. As with our customers and vendors, these economic conditions make it more difficult for us to accurately forecast and plan future business activities. In addition, a significant amount of our trade receivables are either with third party intermediaries marketing, selling and distributing our products or with national healthcare systems in many countries, and repayment of these receivables is dependent upon the financial stability of the economies of those countries.

In light of these global economic fluctuations, we continue to monitor the creditworthiness of all of our customers worldwide. Failure to receive payment of all or a significant portion of receivables could adversely affect results of operations and cash flows. Deterioration in the creditworthiness of the Eurozone countries, the withdrawal of one or more member countries from the EU or the failure of the euro as a common European currency could adversely affect our revenue, financial condition or results of operations.

We intend to continue to pursue growth opportunities in sales worldwide, including in emerging markets outside Europe and the United States, which could expose us to greater risks associated with sales and operations in these regions. Emerging economies have less mature product regulatory systems and can have more volatile financial markets. Our profitability and operations are, and will continue to be, subject to a number of risks and potential costs, including:

- local product preferences and product requirements;
- longer-term receivables than are typical in the EU or the United States;
- fluctuations in foreign currency exchange rates;
- less intellectual property protection in some countries outside the EU or the United States;
- trade protection measures and import and export licensing requirements;
- workforce instability;
- political and economic instability; and
- The risk further described in *"Risk Factors:Our failure to comply with rules relating to healthcare fraud and abuse, false claims and privacy and security laws may subject us to penalties and adversely impact our reputation and business operations."*

We are exposed to foreign currency exchange risk.

We transact business in numerous countries around the world and expect that a significant portion of our business will continue to take place in international markets. Consolidated financial statements are prepared in our functional currency, while the financial statements of each of our subsidiaries are prepared in the functional currency of that entity.

Accordingly, fluctuations in the exchange rate of the functional currencies of our foreign currency entities against our functional currency will impact our results of operations and financial condition. Although we may elect to hedge certain foreign currency exposure, we cannot be certain that the hedging activity will eliminate our currency risk.

In many of the international markets in which we do business, including certain parts of Europe, Asia and Latin America, we sell our products through distributors who may misrepresent our products.

Selling our products through distributors, particularly in public tenders, may expose us to a higher degree of risk. Our agents and distributors are independent contractor third parties retained by us to sell our products in different markets. If they misrepresent our products, do not provide appropriate service and delivery, or commit a violation of local or U.S. law, our reputation could be harmed, and we could be subject to fines, sanctions or both.

We have risks related to access to financial resources.

The credit lines provided by our lenders are governed by clauses, commitments and covenants. The failure to comply with these provisions can constitute a failure to perform a contractual obligation, which authorizes the lender banks to demand the immediate repayment of the facilities, making it difficult to obtain alternative resources.

Changes in our financial position are the result of a number of factors, specifically including the achievement of budgeted objectives and the trends shaping general economic conditions, and the financial markets and the industry within which we

operate. We expect to generate the resources needed to repay maturing indebtedness and fund scheduled investments from the cash flow produced by our operations, our available liquidity, the renewal or refinancing of bank borrowings and possibly, access to the capital markets. Even under current market conditions, we expect that our operations will generate adequate financial resources. Nevertheless, given the volatility in current financial markets, the possibility that problems in the banking and monetary markets could hinder the normal handling of financial transactions cannot be excluded.

Certain of our debt instruments will require us to comply with certain affirmative covenants and specified financial covenants and ratios.

Certain restrictions in our debt instruments could affect our ability to operate and may limit our ability to react to market conditions or to take advantage of potential business opportunities as they arise. For example, such restrictions could adversely affect our ability to finance our operations, make strategic acquisitions, investments or alliances, restructure our organization or finance capital needs. Additionally, our ability to comply with these covenants and restrictions may be affected by events beyond our control, such as prevailing economic, financial, regulatory and industry conditions. If any of these restrictions or covenants is breached, we could be in default under one or more of our debt instruments, which, if not cured or waived, could result in acceleration of the indebtedness under such agreements and cross defaults under its other debt instruments. Any such actions could result in the enforcement of our lenders' security interests and/or force us into bankruptcy or liquidation, which could have a material adverse effect on our financial condition and results of operations.

As an English public limited company, certain capital structure decisions will require shareholder approval which may limit our flexibility to manage its capital structure.

We are a public limited company incorporated under the laws of England and Wales. English law provides that a board of directors may only allot shares (or rights to subscribe for or convertible into shares) with the prior authorization of shareholders, such authorization being up to the aggregate nominal amount of shares and for a maximum period of five years, each as specified in the articles of association or relevant shareholder resolution. This authorization needs to be renewed by our shareholders prior to or upon its expiration (i.e., at least every five years). Our articles of association authorize the allotment of additional shares for a period of five years from the date of the adoption of our articles up to an aggregate nominal amount of 9,764,463 ordinary shares, representing 20% of the number of shares in our capital as of October 19, 2015, the date of the adoption of the our articles, which authorization will need to be renewed upon expiration but may be sought more frequently for additional five-year terms (or any shorter period) and/or may be sought to allot a larger number of shares than specified in the existing authorization.

English law also generally provides shareholders with pre-emptive rights when new shares are issued for cash; however, it is possible for our articles, or shareholders in general meeting, to exclude or dis-apply preemptive rights. Such an exclusion or dis-application of preemptive rights may be for a maximum period of up to five years from the date of adoption of our articles, if the exclusion is contained in our articles, or from the date of the shareholder resolution, if the exclusion is by shareholder resolution; in either case, this exclusion would need to be renewed by our shareholders prior to or upon its expiration (i.e., at least every five years). Our articles exclude preemptive rights in relation to an allotment of shares for cash pursuant to the authority referred to above for a period of five years following the date of the adoption of the our articles, which exclusion will need to be renewed upon expiration (i.e., at least every five years) to remain effective, but may be sought more frequently for additional five-year terms (or any shorter period) and/or may be sought to apply a larger number of shares than specified in the existing, dis-application authority.

English law also generally prohibits a public company from repurchasing its own shares without the prior approval of shareholders by ordinary resolution, being a resolution passed by a simple majority of votes cast, and other formalities. Such approval may be valid for a maximum period of up to five years.

Our inability to integrate recently acquired businesses or to successfully complete future acquisitions could limit our future growth or otherwise be disruptive to our ongoing business.

From time to time, we acquire and expect to pursue acquisitions in support of our strategic goals. In connection with any such acquisitions, we face significant challenges in managing and integrating any expanded or combined operations, including acquired assets, operations and personnel. There can be no assurance that acquisition opportunities will be available on acceptable terms or at all, or that we will be able to obtain necessary financing or regulatory approvals to complete potential acquisitions. Our success in implementing this strategy will depend to some degree on the ability of management to identify, complete and successfully integrate commercially viable acquisitions. Acquisition transactions may disrupt our ongoing business and distract management from other responsibilities.

The success of any acquisition, investment or alliance may be affected by a number of factors, including our ability to properly assess and value the potential business opportunity or to successfully integrate any businesses we may acquire into our existing business. The integration of the operations of acquired businesses requires significant efforts, including the coordination of information technologies, human resources, research and development, sales and marketing, operations, manufacturing, legal, compliance and finance. These efforts result in additional expenses and involve significant amounts of management's time that cannot then be dedicated to other projects. Failure to manage and coordinate the growth of the combined company successfully could also have an adverse impact on our business. In addition, we cannot be certain

that our investments, alliances and acquired businesses will become profitable or remain so. If our investments, alliances or acquisitions are not successful, we may record unexpected impairment charges.

We have and will continue to incur certain transaction and merger-related costs in connection with the Merger between Sorin and Cyberonics.

We have incurred and expect to incur a number of non-recurring direct and indirect costs associated with the Mergers. These costs and expenses include fees paid to financial, legal and accounting advisors, filing fees, printing expenses and other related charges as well as ongoing expenses related to facilities and systems consolidation costs, severance payments and other potential employment-related costs, including payments remaining to be made to certain Sorin and Cyberonics executives. During the years ended December 31, 2017 and December 31, 2016, we incurred $15.5 million and $20.4 million in merger and integration expenses, respectively. In the transitional period, April 25, 2015 to December 31, 2015, we incurred $55.8 million in merger and integration expenses. We expect additional expenses in the future for the integration of the two merged businesses. Integration expenses related to systems integration, organization structure integration, finance, synergy and tax planning, transitioning of accounting methodologies, certain re-branding efforts, and restructuring efforts related to our intent to leverage economies of scale, eliminate overlapping corporate expenses and streamline distributions, logistics and office functions in order to reduce overall costs. While we assumed a certain level of expenses in connection with the terms of the Transaction Agreement, there are many factors beyond our control, including unanticipated costs that could affect the total amount or the timing of these expenses. Although we expect that the benefits of the Mergers will offset the transaction expenses and implementation costs over time, this net benefit may not be achieved in the near term or at all.

We may incur goodwill impairments for goodwill recorded at the Mergers.

During the year ended December 31, 2016, we recorded a pre-tax, non-cash loss on impairment of our Cardiac Rhythm Management reporting unit goodwill of $18.3 million, which was included within discontinued operations in the consolidated statement of net loss. As of December 31, 2017, the carrying value of our goodwill totaled $784.2 million, which represented 31.3% of our total assets.

We test goodwill for impairment on an annual basis or when events or changes in circumstances indicate that a potential impairment exists. The goodwill impairment test requires us to identify reporting units, perform a qualitative assessment of the likelihood that a reporting unit's carrying value exceeds its estimated fair value, and in certain circumstances estimate each reporting unit's fair value as of the testing date. Our calculation of the fair value of our reporting units is based on estimates of future discounted cash flows, which reflect management's judgments and assumptions regarding the appropriate risk-adjusted discount rate, as well as future operating performance and our business outlook, including expected sales, operating costs, capital requirements, growth rates and terminal values for each of our reporting units. If the aggregate fair value of our reporting units exceeds our market capitalization, we evaluate the reasonableness of the implied control premium.

The estimates used to determine the fair value of our reporting units reflect management's best estimates of inputs and assumptions that a market participant would use. Future declines in any one of our reporting units' operating performance or our anticipated business outlook may reduce the estimated fair value of a reporting unit and result in an impairment of goodwill. Factors that could have a negative impact on the fair value of our reporting units include, but are not limited to:

- The ability of our sales force to effectively market and promote our products, and the extent to which those products gain market acceptance;
- the existence and timing of any approvals, changes, or non-coverage determinations for reimbursement by third-party payors;
- the rate and size of expenditures incurred on our clinical, manufacturing, sales, marketing and product development efforts;
- our ability to obtain and retain personnel;
- the availability of key components, materials and contract services, which depends on our ability to forecast sales, among other things;
- investigations of our business and business-related activities by regulatory or other governmental authorities;
- variations in timing and quantity of product orders;
- temporary manufacturing interruptions or disruptions;
- the timing and success of new product and new market introductions, as well as delays in obtaining domestic or foreign regulatory approvals for such introductions;
- increased competition, patent expirations or new technologies or treatments;
- product recalls or safety alerts;
- litigation, including product liability, patent, employment, securities class action, stockholder derivative, general commercial and other lawsuits;
- the financial health of our customers, and their ability to purchase our products in the current economic environment; and
- other unusual or non-operating expenses, such as expenses related to mergers or acquisitions, may cause operating result variations;
- increases in the market-participant risk-adjusted WACC;
- declines in anticipated growth rates.

Adverse changes in one or more of these factors could result in a goodwill impairment in future periods.

As our shares have been delisted from the London Stock Exchange, the City Code on Takeovers and Mergers no longer applies to us and we [and our shareholders] will therefore not have the benefit of the protections that the Code affords.

On February 23, 2017, we announced that we had made applications (i) to the UK Financial Conduct Authority (the "FCA") for the cancellation of the standard listing of our ordinary shares of £1 per share (the "Shares") on the Official List of the UK Listing Authority and (ii) to the London Stock Exchange plc (the "LSE") to cancel the admission to trading of the Shares on the main market of the LSE (the "Main Market") (together, the "Cancellation"). In connection with the Cancellation, we also decided to terminate our UK domestic depositary interest ("DI") facility. Trading of our shares on the LSE ceased from and after the close of business on April 4, 2017.

The Panel on Takeovers and Mergers determined that the City Code on Takeovers and Mergers (the "Code") no longer applies to us indicating among other things that we [and our shareholders] would not have the benefit of the protections the Code affords, including, but not limited to, the requirement that a person who acquires an interest in Shares carrying 30% or more of the voting rights in us must make a cash offer to all other shareholders at the highest price paid in the 12 months before the offer was announced.

Changes in tax laws or exposure to additional income tax liabilities could have a material impact on our financial condition and results of operations.

We are subject to income taxes as well as non-income based taxes, in the United States, the UK, the EU and various other jurisdictions. We are also subject to ongoing tax audits in various foreign jurisdictions. Tax authorities may disagree with certain positions we have taken and assess additional taxes. We believe that our accruals reflect the probable outcome of known contingencies. However, there can be no assurance that we will accurately predict the outcomes of ongoing audits, and the actual outcomes of these audits could have a material impact on our consolidated statement of (loss) income or financial condition. Changes in tax laws or tax rulings could materially impact our effective tax rate or results of operations.

On December 22, 2017, the Tax Cuts and Jobs Act was signed into U.S. law which provided numerous amendments to the Internal Revenue Code of 1986. The Tax Cuts and Jobs Act may impact our U.S. income tax expense (benefit) from continuing operations in future periods.

The IRS may not agree with the conclusion that we should be treated as a foreign corporation for U.S. federal tax purposes, and we may be required to pay substantial U.S. federal income taxes.

We believe that under current law, we are treated as a foreign corporation for U.S. federal tax purposes because we are a UK incorporated entity. Although we are incorporated in the UK, the IRS may assert that we should be treated as a U.S. corporation (and, therefore, a U.S. tax resident) for U.S. federal tax purposes pursuant to Section 7874 of the Code. For U.S. federal tax purposes, a corporation is considered a tax resident in the jurisdiction of its organization or incorporation, except as provided under Section 7874. Subject to the discussion of Section 7874 below, because we are a UK incorporated entity, we would be classified as a foreign corporation (and, therefore, a non-U.S. tax resident) under these rules. Section 7874 provides an exception under which a foreign incorporated entity may, in certain circumstances, be treated as a U.S. corporation for U.S. federal tax purposes.

For us to be treated as a foreign corporation for U.S. federal tax purposes under Section 7874, in connection with the Mergers completed on October 19, 2015, either (i) the former stockholders of Cyberonics must own (within the meaning of Section 7874) less than 80% (by both vote and value) of our shares by reason of holding shares of Cyberonics common stock, or (ii) we must have substantial business activities in the UK after the Mergers (taking into account the activities of our expanded affiliated group). For purposes of Section 7874, "expanded affiliated group" ("EAG") means a foreign corporation and all subsidiaries in which the foreign corporation, directly or indirectly, owns more than 50% of the shares by vote and value. We do not expect to have substantial business activities in the UK within the meaning of these rules.

We believe that because the former stockholders of Cyberonics own (within the meaning of Section 7874) less than 80% (by both vote and value) of our shares by reason of holding shares of Cyberonics common stock, the test set forth above to treat us as a foreign corporation was satisfied in connection with the Mergers completed on October 19, 2015. However, the IRS may disagree with the calculation of the percentage of our shares deemed held by former holders of Cyberonics common stock by reason of being former holders of Cyberonics common stock due to the calculation provisions laid out under Section 7874 and accompanying guidance (the "Section 7874 Percentage"). The rules relating to calculating the Section 7874 Percentage are new and subject to uncertainty, and thus it cannot be assured that the IRS will agree that the ownership requirements to treat us as a foreign corporation were met. In addition, there have been legislative proposals to expand the scope of U.S. corporate tax residence, including by potentially causing us to be treated as a U.S. corporation if our management and control and affiliates were determined to be located primarily in the United States. There have also been recent IRS publications expanding the

application of Section 7874 and there could be prospective or retroactive changes to Section 7874 or the U.S. Treasury Regulations promulgated thereunder that could result in us being treated as a U.S. corporation.

The IRS may not agree with the conclusion that Section 7874 does not limit Cyberonics' and its U.S. affiliates' ability to utilize their U.S. tax attributes and does not impose an excise tax on gain recognized by certain individuals.

If the Section 7874 Percentage is calculated to be at least 60% but less than 80%, Section 7874 imposes a minimum level of tax on any "inversion gain" of a U.S. corporation (and any U.S. person related to the U.S. corporation) after the acquisition. Inversion gain is defined as (i) the income or gain recognized by reason of the transfer of property to a foreign related person during the 10-year period following the Cyberonics merger, and (ii) any income received or accrued during such period by reason of a license of any property by the U.S. corporation to a foreign related person. The effect of this provision is to deny the use of certain U.S. tax attributes (including net operating losses and certain tax credits) to offset U.S. tax liability, if any, attributable to such inversion gain. In addition, the IRS and the U.S. Treasury Department have issued guidance that has further limited benefits of certain post-combination transactions for combinations resulting in a Section 7874 Percentage of at least 60% but less than 80%, and have announced the intention to issue future guidance that could potentially limit benefits of interest deductions from intercompany debt or other deductions deemed to inappropriately "strip" U.S. source earnings.

Additionally, if the Section 7874 Percentage is calculated to be at least 60% but less than 80%, Section 7874 and rules related thereto would impose an excise tax under Section 4985 of the Code ("Section 4985 Excise Tax") on the gain recognized by certain "disqualified individuals" (including officers and directors of Cyberonics) on certain Cyberonics stock-based compensation held thereby at a rate equal to 15%. If the Section 4985 Excise Tax is applicable, the compensation committee of the Cyberonics board has determined that it is appropriate to provide such individuals with a payment with respect to the excise tax, so that, on a net after-tax basis, they would be in the same position as if no such excise tax had been applied.

We believe the Section 7874 Percentage following the combination of Cyberonics and Sorin was less than 60%. As a result, we believe that (i) Cyberonics and its U.S. affiliates will be able to utilize their U.S. tax attributes to offset their U.S. tax liability, if any, resulting from certain subsequent specified taxable transactions, and (ii) "disqualified individuals" will not be subject to the Section 4985 Excise Tax. However, the rules relating to calculating the Section 7874 Percentage are new and subject to uncertainty, and thus it cannot be assured that the IRS will agree that the Section 7874 Percentage following the combination of Cyberonics and Sorin was less than 60%.

Our status as a foreign corporation for U.S. federal income tax purposes could be affected by a change in law.

We believe that under current law, we are treated as a foreign corporation for U.S. federal tax purposes because we are a UK incorporated entity. However, changes to the inversion rules in Section 7874 of the Code or the U.S. Treasury Regulations promulgated thereunder could adversely affect our status as a foreign corporation for U.S. federal tax purposes, and any such changes could have prospective or retroactive application to us and our respective stockholders, shareholders and affiliates. In addition, recent legislative proposals and IRS guidance have aimed to expand the scope of U.S. corporate tax residence, including by reducing the Section 7874 Percentage threshold at or above which we would be treated as a U.S. corporation or by determining our U.S. corporate tax residence based on the location of our management and control. Any such changes to Section 7874 or other such legislation, if passed, could have a significant adverse effect on our financial results.

We may not qualify for benefits under the tax treaty entered into between the UK and the United States.

We believe that we operate in a manner such that we are eligible for benefits under the tax treaty entered into between the UK and the United States; however, our ability to qualify for such benefits will depend upon the requirements contained in such treaty. Our failure to qualify for benefits under the tax treaty entered into between the UK and the United States could result in adverse tax consequences to us.

The 2016 U.S. Model Income Tax Convention released by the U.S. Treasury Department would reduce potential tax benefits with respect to us if the Section 7874 Percentage is calculated to be at least 60% but less than 80% by imposing full withholding taxes on payments pursuant to certain financing structures, distributions from our U.S. subsidiaries and payments pursuant to certain licensing arrangements. If the proposed treaty is enacted with applicability to us, it would result in material reductions in the benefit of qualifying for a treaty.

We believe that we operate so as to be treated exclusively as a resident of the UK for tax purposes, but the relevant tax authorities may treat us as also being a resident of another jurisdiction for tax purposes.

We are a company incorporated in the UK. Current UK law provides that we will be regarded as being a UK resident for tax purposes from incorporation and shall remain so unless (a) we are concurrently resident in another jurisdiction (applying the tax residence rules of that jurisdiction) that has a double tax treaty with the UK and (b) there is a tiebreaker provision in that tax treaty which allocates exclusive residence to that other jurisdiction.

Based on our management and organizational structure, we believe that we should be regarded as resident exclusively in the UK from our incorporation for tax purposes. However, because this analysis is highly factual and may depend on future changes in our management and organizational structure, there can be no assurance regarding the final determination of our tax residence. Should we be treated as resident in a country or jurisdiction other than the UK, we could be subject to taxation in that country or jurisdiction on its worldwide income and we may be required to comply with a number of material and formal tax obligations, including withholding tax and/or reporting obligations provided under the relevant tax law, which could result in additional costs and expenses for us, as well as our shareholders, lenders and/or bondholders.

Our effective tax rate is uncertain and may vary from expectations.

No assurances can be given as to what our worldwide effective corporate tax rate will be because of, among other things, uncertainty regarding the tax regulations and laws, enactment and enforceability thereof, policies of the jurisdictions where we operate. Our actual effective tax rate may vary from our expectations or from historical trends and that variance may be material. Additionally, tax laws or their implementation and applicable tax authority practices could change in the future.

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (the "Act"). The Act, which is also commonly referred to as "U.S. tax reform", significantly changes U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21% commencing in 2018. In addition, the Act created a one-time mandatory tax, a toll charge, on previously deferred foreign earnings of non-U.S. subsidiaries controlled by a U.S. corporation, or, in our case, a non-U.S. subsidiary controlled by one of our U.S. subsidiaries. We recorded no toll charge for the year ended December 31, 2017 as we had no previously deferred foreign earnings of U.S. controlled foreign subsidiaries as of the measurement dates. As a result of the Act, we recorded a non-cash net charge of $27.5 million during the fourth quarter of 2017, which is included in "Income tax expense (benefit)' in the consolidated statement of (loss) income. This amount primarily consists of two components: (i) $12.8 million relating to the impairment of foreign tax credits, and (ii) a net $14.7 million charge resulting from the remeasurement of our deferred tax assets and liabilities in the U.S. based on the change in the U.S. federal corporate income tax rate.

Further regulations and notices and state conformity could be issued as a result of U.S. tax reform covering various issues that may affect our tax position including, but not limited to, an increase in the corporate state tax rate and elimination of the interest deduction. The content of any future legislation, the timing for regulations, notices, and state conformity, and the reporting periods that would be impacted cannot be determined at this time. Although we believe the net charge of $27.5 million is a reasonable estimate of the impact of the income tax effects of the Act on LivaNova as of December31, 2017, the estimate is provisional. Once we finalize certain tax positions for our 2017 U.S. consolidated tax return, we will be able to conclude whether any further adjustments to our tax positions are required.

Transfers of our shares may be subject to UK stamp duty or UK stamp duty reserve tax ("SDRT").

UK stamp duty and/or SDRT are imposed in the UK on certain transfers of or agreements to transfer chargeable securities (which include shares in companies incorporated in the UK) at a rate of 0.5% of the consideration paid for the transfer. Certain issues or transfers of shares to depositories or into clearance services, as discussed below, are charged at a higher rate of 1.5%.

Transfers of shares or agreements to transfer shares held in book entry form through the Depository Trust & Clearing Corporation ("DTC") should not be subject to UK stamp duty or SDRT in the UK A transfer of title in the shares or an agreement to transfer the shares from within the DTC system out of DTC and any subsequent transfers or agreements to transfer that occur entirely outside the DTC system, including our share repurchases, will generally be subject to UK stamp duty or SDRT at a rate of 0.5% of any consideration, which is payable by the transferee of the shares. Any such duty must be paid (and the relevant transfer document stamped by Her Majesty's Revenue & Customs ("HMRC")) before the transfer can be registered in our books. If such shares are redeposited into the DTC system, the redeposit will attract UK stamp duty or SDRT at the higher 1.5% rate.

We have put in place arrangements to require that shares held in certificated form cannot be transferred into the DTC system until the transferor of the shares has first delivered the shares to a depository we have specified so that UK stamp duty or SDRT may be collected in connection with the initial delivery to the depository. Any such shares will be evidenced by a receipt issued by the depository. Before the transfer can be registered in our books, the transferor will also be required to put the depository in funds to settle the applicable UK stamp duty or SDRT, which will be charged at a rate of 1.5% of the value of the shares.

In HMRC's most recent guidance published on July 23, 2014, in response to the decisions in certain recent cases, HMRC has confirmed that it will no longer seek to apply the 1.5% UK stamp duty or SDRT charge when new shares of companies incorporated in the UK are first issued to a clearance service (or its nominee) or depositary (or its nominee or agent) anywhere in the world or are transferred to such an entity anywhere in the world as an integral part of an issue of share capital. Accordingly, we do not currently expect that UK stamp duty and/or SDRT will be imposed under current UK tax law and HMRC practice on future issue of our shares; however, it is possible that the UK government may change the relevant law in response to the cases referenced above, and that this may have a material effect on the cost of shares we issue and potentially on the cost of dealing in our shares. If our shares are not eligible for deposit and clearing within the facilities of DTC, then transactions in its securities may be disrupted.

The facilities of DTC are a widely-used mechanism that allows for rapid electronic transfers of securities between the participants in the DTC system, which include many large banks and brokerage firms. Our shares are at present, subject to certain conditions, generally eligible for deposit and clearing within the DTC system. However, DTC generally has discretion to cease to act as a depository and clearing agency for our shares. If DTC determines at any time that our shares are not eligible for continued deposit and clearance within its facilities, then we believe that our shares would not be eligible for continued listing on a U.S. securities exchange and trading in our shares would be disrupted. While we would pursue alternative arrangements to preserve the listing and maintain trading, any such disruption could have a material adverse effect on the trading price of our shares.

Item 1B Unresolved Staff Comments

None.

Item 2 Properties

Our principal executive office is located in the UK and is leased by us. Our Business Franchises, corresponding to our main therapeutic areas: Neuromodulation and Cardiac Surgery have headquarters located in United States and Italy, respectively. The locations in Italy and United States are owned by us. Manufacturing and research facilities are located in Brazil, Canada, Germany, Italy, Australia and the United States. Total facilities are approximately 1.3 million square feet. Approximately 25% of the manufacturing facilities are located within the United States and approximately 90% are owned by us and the balance is leased.

We also maintain 16 primary administrative offices in 12 countries. Most of these locations are leased. We are using substantially all of our currently available productive space to develop, manufacture, and market our products. Our facilities are in good operating condition, suitable for their respective uses, and adequate for current needs.

Item 3 Legal Proceedings

For a description of our material pending legal and regulatory proceedings and settlements, refer to "Note 12. Commitments and Contingencies" in our consolidated financial statements included in this Annual Report on Form 10-K.

Item 4 Mine Safety Disclosures

Not applicable.

PART II

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

Our ordinary shares are quoted on the NASDAQ Global Market and previously were quoted on the Main Market of the London Stock Exchange (as a standard listing) under the symbol "LIVN." On February 23, 2017, we announced our voluntary cancellation of our standard listing of our shares with the London Stock Exchange due to the low volume of our share trading on the London Stock Exchange. Trading ceased at the close of business on April 4, 2017.

The high and low sale prices for our shares during the years ended December 31, 2017 and December 31, 2016, are set forth below. Price data reflect actual transactions on the NASDAQ Global Market, but do not reflect mark-ups, mark-downs or commissions.

	High	Low
Year Ended December 31, 2016		
First Quarter	$ 60.49	$ 51.28
Second Quarter	55.24	46.79
Third Quarter	63.21	49.27
Fourth Quarter	60.99	40.84
Year Ended December 31, 2017		
First Quarter	$ 52.88	$ 44.72
Second Quarter	62.91	49.10
Third Quarter	70.50	59.12
Fourth Quarter	88.56	69.74

As of February 22, 2018, according to data provided by our transfer agent, there were 24 stockholders of record. However, we believe that the actual number of beneficial holders of our shares may be substantially greater than the stated number of holders of record because a substantial portion of the shares are held in street name.

Recent Sales of Unregistered Securities

During the past fiscal year, we did not issue any securities that were not registered under the Securities Act.

Dividend Policy

As a company organized under the laws of England and Wales, we must have "distributable reserves" to make share repurchases or pay dividends to shareholders. Distributable reserves may be created through the earnings of the U.K. parent company and, amongst other methods, through a reduction in share capital approved by the English Companies Court. Distributable reserves are not linked to a U.S. GAAP reported amount. In March 2016, we capitalized $2,583 million of the Merger Reserve in order to create distributable reserves. In addition to having sufficient distributable reserves, English law requires a public company's net worth to be at least equal to the amount of its capital. Accordingly, a public company can only make a distribution: (a) if, at the time that the distribution is made, the amount of its net assets (that is, the total excess of assets over liabilities) is not less than the total of its called-up share capital and undistributable reserves; and (b) if, and to the extent that, the distribution itself, at the time that it is made, does not reduce the amount of the net assets to less than that total.

We currently have no intention to declare and pay dividends.

Issuer Purchases of Securities

On August 1, 2016, the Board of Directors of LivaNova approved the authorization of a share repurchase program of up to $150 million (the "Share Repurchase Program") between September 1, 2016 through December 31, 2016. On November 15, 2016, the Board of Directors approved an amendment (the "Amended Share Repurchase Program") to the Share Repurchase Program. The Amended Share Repurchase Program authorized the Company to repurchase up to $150 million of our shares between September 1, 2016 and December 31, 2018. These programs are in accordance with an authority approved by the Company's shareholders at its annual general meeting on June 15, 2016. There were no shares purchased under the Amended Share Repurchase Program during 2017. At December 31, 2017, the approximate dollar value of shares that may yet be purchased under the Amended Share Repurchase Program was $100 million.

Item 6 Selected Financial Data

The following table summarizes certain selected financial data and is qualified by reference to, and should be read in conjunction with the consolidated financial statements and related notes and with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" included in this Annual Report on Form 10-K. The selected financial data and the related notes for the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015 and the fiscal year ended April 24, 2015 are derived from audited consolidated financial statements that are included in this Annual Report on Form 10-K, and were prepared in accordance with generally accepted accounting principles in the United States. The consolidated results for LivaNova for the period April 25, 2015 to December 31, 2015 includes the results for Cyberonics and its consolidated subsidiaries for the period April 25, 2015 to December 31, 2015 and the results of Sorin and its subsidiaries, for the period October 19, 2015 to December 31, 2015. The selected financial data for the fiscal years ended April 25, 2014 and April 26, 2013 is derived from Cyberonics audited consolidated financial statements that are not included in this Annual Report on Form 10-K, which were prepared in accordance with generally accepted accounting principles in the United States.

Consolidated Statements of Operations Data

(In thousands, except per share data)	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015	Fiscal Year Ended April 25, 2014	Fiscal Year Ended April 26, 2013
Net sales	$ 1,012,277	$ 964,858	$ 363,237	$ 291,558	$ 282,014	$ 254,320
Cost of sales	353,403	367,818	113,404	27,311	27,355	21,907
Product remediation	7,254	37,534	—	—	—	—
Gross profit	651,620	559,506	249,833	264,247	254,659	232,413
Operating expenses:						
Selling, general and administrative	380,560	356,807	147,025	123,619	120,642	112,515
Research and development	109,662	82,467	41,916	42,245	45,220	41,552
Merger and integration expenses	15,528	20,377	55,776	8,692	—	—
Restructuring expenses	17,056	37,377	10,494	—	—	—
Amortization of intangibles	33,144	31,035	7,030	1,039	1,342	—
Litigation related expenses	—	—	—	—	7,443	—
Total operating expenses	555,950	528,063	262,241	175,595	174,647	154,067
Operating income (loss) from continuing operations	95,670	31,443	(12,408)	88,652	80,012	78,346
Interest (expense) income, net	(6,479)	(8,918)	(1,117)	163	162	(35)
Gain on acquisition of Caisson Interventional, LLC	39,428	—	—	—	—	—
Impairment of cost-method investments	(8,565)	—	(5,062)	—	—	(4,059)
Gain on warrants' liability	—	—	—	—	—	1,326
Foreign exchange and other gains (losses)	1,084	3,141	(7,411)	479	(295)	(303)
Income (loss) from continuing operations before tax	121,138	25,666	(25,998)	89,294	79,879	75,275
Income tax expense (benefit)	49,954	5,113	(13,501)	31,446	24,989	28,917
Losses from equity method investments	(16,719)	(18,679)	(2,223)	—	—	—
Net income (loss) from continuing operations	54,465	1,874	(14,720)	57,848	54,890	46,358
Discontinued Operations:						
Loss from discontinued operations, net of tax	(1,271)	(64,663)	(14,893)	—	—	—
Impairment of discontinued operations, net of tax	(78,283)	—	—	—	—	—
Net loss from discontinued operations	(79,554)	(64,663)	(14,893)	—	—	—
NET (LOSS) INCOME	**$ (25,089)**	**$ (62,789)**	**$ (29,613)**	**$ 57,848**	**$ 54,890**	**$ 46,358**
Basic income (loss) per common share:						
Continuing operations	$ 1.13	$ 0.04	$ (0.45)	$ 2.19	$ 2.02	$ 1.68
Discontinued operations	(1.65)	(1.33)	(0.45)	—	—	—
	$ (0.52)	**$ (1.29)**	**$ (0.90)**	**$ 2.19**	**$ 2.02**	**$ 1.68**
Diluted income (loss) per common share:						
Continuing operations	$ 1.12	$ 0.04	$ (0.45)	$ 2.17	$ 2.00	$ 1.66
Discontinued operations	(1.64)	(1.32)	(0.45)	—	—	—
	$ (0.52)	**$ (1.28)**	**$ (0.90)**	**$ 2.17**	**$ 2.00**	**$ 1.66**
Shares used in computing basic income (loss) per share	48,157	48,860	32,741	26,391	27,143	27,604
Shares used in computing diluted income (loss) per share	48,501	49,014	32,741	26,626	27,466	28,009
Consolidated Balance Sheet Data (at year/period end):						
Cash, cash equivalent and short-term investments	$ 93,615	$ 39,789	$ 119,610	$ 151,207	$ 128,328	$ 135,709
Working capital	463,842	462,800	314,293	209,272	190,532	178,333
Total assets	2,503,891	2,342,631	2,558,739	315,944	294,191	264,043
Long-term debt, net of current portion	61,958	75,215	91,791	—	—	—
Retained (deficit) earnings	(39,664)	(14,575)	48,214	77,827	19,979	(34,911)
Stockholders' equity	$ 1,815,314	$ 1,706,909	$1,811,462	$ 276,574	$ 259,100	$ 229,568

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

You should read the following discussion and analysis together with Part I of this Annual Report on Form 10-K, including the matters set forth in "Cautionary Statement About Forward-Looking Statements," "Item 1A. Risk Factors" and our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K as of and for the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015 and the fiscal year ended April 24, 2015.

Description of the Business

We are a global medical device company focused on the development and delivery of important therapeutic solutions for the benefit of patients, healthcare professionals and healthcare systems throughout the world. Working closely with medical professionals in the fields of Cardiac Surgery and Neuromodulation, we design, develop, manufacture and sell innovative therapeutic solutions that are consistent with our mission to improve our patients' quality of life, increase the skills and capabilities of healthcare professionals and minimize healthcare costs.

Sale of the CRM Business Franchise

On November 20, 2017, we entered the LOI to sell CRM to MicroPort Scientific Corporation for $190 million in cash. The results of operations of CRM are reflected as discontinued operations for all periods presented in this Annual Report on Form 10-K. Refer to the Discontinued Operations discussion below and to Note 4. Discontinued Operations to the Financial Statements in this Annual Report on Form 10-K.

Background and the Mergers

Headquartered in London, LivaNova PLC (collectively with its subsidiaries, the "Company", "LivaNova", "we" or "our") was organized under the laws of England and Wales on February 20, 2015 for the purpose of facilitating the business combination of Cyberonics, Inc., a Delaware corporation ("Cyberonics") and Sorin S.p.A., a joint stock company organized under the laws of Italy ("Sorin"). As a result of the business combination, we became the holding company of the combined businesses of Cyberonics and Sorin. This business combination (the "Mergers") became effective on October 19, 2015, at which time our shares were listed for trading on the NASDAQ Global Market ("NASDAQ") and on the London Stock Exchange (the "LSE") as a standard listing under the trading symbol "LIVN." Upon the consummation of the Mergers, the historical financial statements of Cyberonics became the Company's historical financial statements. Accordingly, the historical financial statements of Cyberonics are included in the comparative prior periods. For further information regarding the acquisition, refer to "Note 3. Business Combinations" to the consolidated financial statements included in this Annual Report on Form 10-K.

Business Franchises

LivaNova is comprised of two principal Business Franchises: Cardiac Surgery and Neuromodulation, corresponding to our main therapeutic areas. Corporate activities include corporate business development and New Ventures. New Ventures is focused on new growth platforms and identification of other opportunities for expansion.

Cardiac Surgery Update

Our Cardiac Surgery Business Franchise ("CS") is engaged in the development, production and sale of cardiac surgery products, including oxygenators, heart-lung machines, perfusion tubing systems, cannulae and other accessories used for extracorporeal circulation, systems for autologous blood transfusion and blood washing, as well as a complete line of surgical tissue and mechanical heart valve replacements and repair products.

Research and Development updates

In October 2015, we announced the initiation of PERSIST-AVR, the first international, prospective post-market randomized multi-center clinical study evaluating the Perceval sutureless aortic valve compared to standard sutured bioprostheses in patients with aortic valve disease. The Perceval valve, the only sutureless biological aortic valve replacement ("AVR") on the market today, employs a unique self-anchoring frame that enables the surgeon to replace the diseased valve without suturing it into place. The study is expected to enroll 1,234 patients within a two-year enrollment period and patients will be followed until five years post procedure. In January 2017, the independent study, "Aortic Valve Replacement With Sutureless Perceval Bioprosthesis: Single-Center Experience With 617 Implants," was presented to The Society of Thoracic Surgeons. The study found AVR procedures conducted with the Perceval sutureless valve resulted in low mortality and excellent hemodynamic performance for patients.

Cardiopulmonary product updates

In September 2017, we received FDA 510(k) clearance for the U.S. market launch of our Optiflow Arterial Cannulae Family. Optiflow aortic arch cannulae provide improved hydrodynamics with a novel dispersive tip design that improves blood flow characteristics resulting in reduced wall shear stress ("WSS") profiles. Optiflow Arterial cannulae feature a unique basket tip with large openings that allow a more physiologically compatible dispersive design. This design has been shown to significantly reduce WSS and turbulence, thereby improving hydrodynamics and potentially reducing ischemic complications from extracorporeal circulation during cardiac surgery.

FDA Warning Letter

On December 29, 2015, the FDA issued a Warning Letter (the "Warning Letter") alleging certain violations of FDA regulations applicable to medical device manufacturers at our Munich, Germany and Arvada, Colorado facilities. Among other things, the Warning Letter stated that our 3T devices and other devices we manufactured at our Munich facility are subject to refusal of admission into the U.S. until resolution of the issues set forth by the FDA in the Warning Letter. The FDA has informed us that the import alert is limited to the 3T devices, but that the agency reserves the right to expand the scope of the import alert if future circumstances warrant such action. The Warning Letter did not request that existing users cease using the 3T device, and manufacturing and shipment of all of our products other than the 3T device remain unaffected by the import limitation.

To help clarify these issues for current customers, we issued an informational Customer Letter in January 2016, and that same month agreed with the FDA on a process for shipping 3T devices to existing U.S. users pursuant to a certificate of medical necessity program. We continue to work diligently to remediate the FDA's inspectional observations for the Munich facility, as well as the additional issues identified in the Warning Letter. For further information, please refer to "Note 12. Commitments and Contingencies" in our consolidated financial statements included in this Annual Report on Form 10-K.

CDC and FDA Safety Communications and Company Field Safety Notice Update

On October 13, 2016 the Centers for Disease Control and Prevention ("CDC") and FDA separately released safety notifications regarding the 3T devices. The CDC's Morbidity and Mortality Weekly Report ("MMWR") and Health Advisory Notice ("HAN") reported that tests conducted by CDC and its affiliates indicate that there appears to be genetic similarity between both patient and 3T device strains of the non-tuberculous mycobacterium ("NTM") bacteria M. chimaera isolated in hospitals in Iowa and Pennsylvania. Citing the geographic separation between the two hospitals referenced in the investigation, the report asserts that 3T devices manufactured prior to August 18, 2014 could have been contaminated during the manufacturing process. The CDC's HAN and FDA's Safety Communication, issued contemporaneously with the MMWR report, each assess certain risks associated with 3T devices and provide guidance for providers and patients. On October 13, 2016, we issued a Field Safety Notice Update for U.S. users of 3T devices to proactively and voluntarily contact facilities to aid in implementation of the CDC and FDA recommendations. For further information, please refer to "Note 12. Commitments and Contingencies" in our consolidated financial statements included in this Annual Report on Form 10-K.

Product Remediation Plan

In response to the Warning Letter and CDC's HAN and FDA's Safety Commission, in the fourth quarter of 2016, we initiated a program to provide existing 3T device users with a new loaner 3T device at no charge pending regulatory approval and implementation of additional risk mitigation strategies worldwide. This loaner program began in the U.S. and is being made available progressively on a global basis, prioritizing and allocating devices to 3T device users based on pre-established criteria. We anticipate that this program will continue until we are able to address customer needs through a broader solution that includes implementation of one or more of the risk mitigation strategies currently under review with regulatory agencies. We are also currently implementing a vacuum and sealing upgrade program in as many countries as possible throughout 2018 and beyond until all devices are upgraded. Furthermore, we intend to perform a no-charge deep disinfection service for 3T device users who have reported confirmed M. chimaera mycobacterium contamination. Although the deep disinfection service is not yet available in the U.S., it is currently offered in many countries around the world and will be expanded to additional geographies as we receive the required regulatory approvals.

On December 31, 2016, we recognized a liability for our product remediation plan related to our 3T device. We concluded that it was probable that a liability had been incurred upon management's approval of the plan and the commitments made by management to various regulatory authorities globally in November and December 2016, and furthermore, the cost associated with the plan was reasonably estimable. At December 31, 2017, the product remediation liability was $27.5 million. Refer to "Note 6. Product Remediation Liability" for additional information.

Heart Valve product updates

In January 2016, we announced FDA approval of the Perceval sutureless valve. While we have been selling Perceval in other parts of the world for several years, we began commercial distribution of the device in the United States last year, with the first implant announced on March 8, 2016. The Perceval valve has been implanted in more than 25,000 patients in more than 310 hospitals in 34 countries across the world.

In early February 2016, we announced that we received FDA approval of our CROWN PRT valve for the treatment of aortic valve disease. The CROWN PRT valve uses a stented aortic bioprosthesis technology and features a surgeon-friendly design, with optimized hemodynamics and a patented phospholipid reduction treatment ("PRT"), designed to enhance valve durability. We launched the CROWN PRT valve in the U.S. in the fourth quarter of fiscal year 2016.

Sale of our Suzhou Industrial Park facility in Shanghai, China

In March 2017, we committed to a plan to sell our Suzhou Industrial Park facility in Shanghai, China, an emerging market greenfield project for the local manufacture of Cardiopulmonary disposable products in Suzhou Industrial Park in China. As a result of this exit plan, we recorded an impairment of the building and equipment of $5.4 million and accrued $0.5 million of additional costs, primarily related to employee severance, during the year ended December 31, 2017, included in 'Restructuring expenses' in the consolidated statement of (loss) income. In addition, the land, building and equipment were recorded as Assets held for sale on the consolidated balance sheet, with a carrying value of $13.6 million as of December 31, 2017. In December, 2017, we executed a letter of intent for the sale of the Suzhou facility.

Neuromodulation Update

The Neuromodulation segment designs, develops and markets neuromodulation therapy for the treatment of drug-resistant epilepsy and treatment resistant depression. Through this segment, we market our proprietary implantable VNS Therapy® Systems that deliver vagus nerve stimulation therapy for the treatment of epilepsy and depression.

Research and Development updates

Our product development efforts are directed toward improving the VNS Therapy System and developing new products that provide additional features and functionality. We are conducting ongoing product development activities to enhance the VNS Therapy System pulse generator, lead and programming software. We support studies for our product development efforts and to build clinical evidence for the VNS Therapy System. We will be required to obtain appropriate U.S. and international regulatory approvals, and clinical studies may be a prerequisite to regulatory approvals for some products. Our research and development ("R&D") efforts will require significant funding to complete and may not be successful. Even if successful, additional clinical studies may be needed to achieve regulatory approval and to commercialize any or all new or improved products. Several development projects were either terminated or halted during year ended December 31, 2016. We made the decision to focus our efforts on projects we believe have a strong likelihood of meeting both patient and physician needs in the near term.

Product updates

Epilepsy

In October 2017, we obtained FDA approval to market our SenTiva VNS Therapy System, which consists of the SenTiva implantable generator and the next-generation VNS Therapy Programming System. SenTiva is the smallest and lightest responsive therapy for epilepsy. The new VNS Therapy Programming System features a wireless wand and new user interface on a small tablet. Together, these components offer patients with drug-resistant epilepsy a physician-directed, customizable therapy with smart technology that reduces the number of seizures, lessens the duration of seizures and enables a faster recovery.

In June 2017, the FDA approved our VNS Therapy device for use in patients who are at least four years of age and have partial onset seizures that are refractory to antiepileptic medications. VNS Therapy is the first and only FDA-approved device for drug-resistant epilepsy in this pediatric population. Previously, VNS Therapy was approved by the FDA for patients 12 years or older.

In addition, in June 2017, we received FDA approval, and in August 2017, we received CE Mark approval, for our VNS Therapy device for expanded magnetic resonance imaging ("MRI") labeling affirming VNS Therapy as the only epilepsy device approved by the FDA for MRI scans. Currently, SenTiva, AspireHC and AspireSR models of VNS Therapy technology provide for this expanded MRI access.

Depression

In March 2017, the American Journal of Psychiatry published the results of the longest and largest naturalistic study on effective treatments for patients experiencing chronic and severe depression. The findings showed that the addition of VNS Therapy to traditional treatment methods is effective in reducing symptoms in patients with treatment-resistant depression.

Costa Rica Manufacturing plant closure

In October 2016, management initiated a plan to exit the Costa Rica manufacturing operations and transfer those activities to Houston, Texas. We recorded an impairment of the building and equipment of $5.7 million in fiscal year 2016, which was included in 'Restructuring expenses' in the consolidated statement of (loss) income. In addition, the carrying value of $4.5 million for the land and building after impairment was reclassified as Assets held for sale and were included in 'Other current assets' in the consolidated balance sheet as of December 31, 2016. We completed the sale of the Costa Rica facility during the year ended December 31, 2017 and received $4.9 million in proceeds from the sale.

Corporate Activities and New Ventures

Corporate activities include shared services for finance, legal, human resources and information technology, corporate business development and New Ventures. New Ventures is focused on new growth platforms and identification of other opportunities for expansion.

Heart failure

With respect to heart failure, New Ventures is focused on the development and clinical testing of the VITARIA System for treating heart failure through vagus nerve stimulation.

We received CE Mark approval of the VITARIA System in February 2015 for patients who have moderate to severe heart failure (New York Heart Association Class II/III) with left ventricular dysfunction (ejection fraction < 40%) and who remain symptomatic despite stable, optimal heart failure drug therapy. The VITARIA System provides a specific method of VNS called autonomic regulation therapy ("ART"), and it includes the same elements as the VNS Therapy System. We conducted a pilot study, ANTHEM-HF, outside the United States, which concluded in 2014. The study results support the safety and efficacy of ART delivered by the VITARIA System. The VITARIA System is not approved in the U.S. During 2014, we also initiated a second pilot study, ANTHEM-HFpEF, to study ART in patients experiencing symptomatic heart failure with preserved ejection fraction. This pilot study is currently underway outside the United States.

Sleep Apnea

In October 2014, Sorin invested $20.0 million in Respicardia, a U.S.-based developer of implantable therapies designed to improve Respiratory Rhythm Management and cardiovascular health. Respicardia's remedē® System is an implantable device system designed to restore a more natural breathing pattern during sleep in patients with central sleep apnea (CSA) by transvenously stimulating the phrenic nerve. The remedē System received CE Mark certification in 2010 and in October 2017, Respicardia received U.S. FDA market approval. In September 2016, we elected not to exercise our option to purchase the outstanding shares of Respicardia as the investment no longer met our objective for substantial ongoing involvement taken into consideration with our overall portfolio management program. As a result, in September 2016 we recorded an impairment of $9.2 million equal to the amount of the carrying value of the option. In addition, we terminated our exclusive distribution agreement with Respicardia in November 2016. In December 2017, certain factors, including an additional round of external financing with a new investor, indicated that the carrying value of our investment might not be recoverable and the decrease in value of our investment was other than temporary. Our estimate of the fair value of our investment using the income approach resulted below our carrying value and as a result, we recorded an additional impairment of $5.5 million. This impairment was recorded in 'Impairment of cost-method investments' in our consolidated statement of (loss) income.

We have invested in ImThera Medical, Inc. ("ImThera"), a privately held, emerging-growth company developing an implantable neurostimulation device system for the treatment of obstructive sleep apnea ("OSA") since 2011. On January 16, 2018 we acquired the remaining 86% outstanding interests in ImThera for up to approximately $225 million. Up-front costs are approximately $78 million with the balance paid on a schedule driven by regulatory and sales milestones. Headquartered in San Diego, California, ImThera manufactures an implantable device that stimulates multiple tongue muscles via the hypoglossal nerve, which opens the airway while a patient is sleeping. The ImThera device is highly aligned with our Neuromodulation Business Franchise. ImThera has a commercial presence in the European market, while we will be advancing ImThera's enrollment in an FDA pivotal study. We expect to submit pivotal trial results to the FDA towards the end of 2019 or in early 2020.

Mitral Valve Regurgitation

Mitral regurgitation ("MR") occurs when the heart's mitral valve does not close tightly, which allows blood to flow backwards in the heart. This reduces the amount of blood that flows to the rest of the body, making the patient feel tired or out of breath. Treatment depends on the nature and the severity of MR. In certain cases, heart surgery may be needed to repair or replace the valve. Left untreated, severe MR can cause heart failure or heart rhythm problems (arrhythmias).

Caisson Interventional, LLC ("Caisson") is a clinical-stage medical device company based in Maple Grove, Minnesota and is focused on the design, development and clinical evaluation of a novel transcatheter mitral valve replacement ("TMVR") implant device with a fully transvenous delivery system for the treatment of mitral regurgitation. On May 2, 2017, we acquired the remaining 51% outstanding equity interests in Caisson for a purchase price of up to $72.0 million, in support of our strategic growth initiatives. As a result of our acquisition of Caisson, we began consolidating the results of Caisson as of May 2, 2017. In April 2016, Caisson obtained FDA approval of an Investigational Device Exemption study using its technology for treating mitral regurgitation heart failure with transcatheter mitral valve replacement and we are currently executing against a defined clinical data development plan designed to enable commercialization of the Caisson technology.

We are also invested in two mitral valve startups. Cardiosolutions Inc. ("Cardiosolutions") and Highlife S.A.S. ("Highlife"). Cardiosolutions, a startup headquartered in the U.S. in which we have held an interest since 2012, is developing an innovative spacer technology for treating mitral regurgitation. Highlife, headquartered in France, is focused on developing devices for treating mitral regurgitation through percutaneous replacement of the native mitral valve. We recognized an impairment of our equity method investment in, and notes receivable from, Highlife during the year ended December 31, 2017, due to certain factors including a revision in our investment strategy that indicated that the carrying value of our aggregate investment might not be recoverable and that the decrease in value of our aggregate investment was other than temporary. We, therefore, estimated the fair value of our investment and notes receivable using the market approach and recorded an aggregate impairment of $13.0 million.

Results of Continuing Operations

The merger of Cyberonics and Sorin on October 19, 2015 was considered a business combination using the acquisition method of accounting, with Cyberonics considered the acquirer of Sorin. As a result, Sorin's assets and liabilities were combined at their estimated fair values. In addition, LivaNova became the holding company of the combined businesses of Cyberonics and Sorin and the "successor" company to Cyberonics for accounting and Exchange Act reporting purposes.

Understanding Our Financial Information

In this Annual Report on Form 10-K, LivaNova, as the successor company to Cyberonics, is reporting (in accordance with generally accepted accounting principles in the United States) the results for:

- LivaNova and its consolidated subsidiaries for the years ended December 31, 2017 and December 31, 2016.
- A transitional period, April 25, 2015 to December 31, 2015, filed on Form 10-K/T. This transitional report is the result of the change from Cyberonics' fiscal year ending the last Friday in April before the Mergers to a calendar year ending December 31st after the Mergers. The transitional period included the business activities of Cyberonics and its consolidated subsidiaries for the period April 25, 2015 to October 18, 2015, and the consolidated results of the combined businesses of LivaNova (Cyberonics and Sorin) for the period October 19, 2015 to December 31, 2015.
- LivaNova is also reporting the historical results of Cyberonics and its consolidated subsidiaries for the fiscal year ended April 24, 2015.

The transitional period, April 25, 2015 to December 31, 2015, as described above, impacts the comparability of the revenues, cost of sales and expenses for the years ended December 31, 2017 and December 31, 2016, and as such, we have provided an unaudited equivalent prior period consisting of business activity for the period January 24, 2015 to December 31, 2015. The unaudited equivalent prior period included the transitional period April 25, 2015 to December 31, 2015, and the unaudited Cyberonics fourth quarter data from the fiscal year ended April 24, 2015, or January 24, 2015 to April 24, 2015. The equivalent prior period has 18 fewer working days than the year ended December 31, 2016 and 17 working days fewer than the year ended December 31, 2017.

In addition, amortization expense of $7.7 million and $1.0 million for the transitional period April 25, 2015 to December 31, 2015, and the prior fiscal year ended April 24, 2015, respectively, was reclassified on the consolidated statements of income (loss) in order to conform with the presentation for the years ended December 31, 2017 and December 31, 2016. Amortization was reclassified from Cost of sales, selling, general and administrative and research and development and reported separately on the consolidated statements of income (loss).

The following table summarizes our consolidated results for the years ended December 31, 2017 and December 31, 2016, the equivalent prior period January 24, 2015 to December 31, 2015, and the fiscal year ended April 24, 2015 (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Equivalent Prior Period January 24, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
			(Unaudited)	
Net sales	$ 1,012,277	$ 964,858	$ 437,309	$ 291,558
Cost of sales	353,403	367,818	120,999	27,311
Product remediation	7,254	37,534	—	—
Gross profit	651,620	559,506	316,310	264,247
Operating expenses:				
Selling, general and administrative	380,560	356,807	176,715	123,619
Research and development	109,662	82,467	52,605	42,245
Merger and integration expenses	15,528	20,377	64,468	8,692
Restructuring expenses	17,056	37,377	10,494	—
Amortization of intangibles	33,144	31,035	7,715	1,039
Total operating expenses	555,950	528,063	311,997	175,595
Operating income from continuing operations	95,670	31,443	4,313	88,652
Interest income	1,318	1,698	354	184
Interest expense	(7,797)	(10,616)	(1,502)	(21)
Gain on acquisition of Caisson Interventional, LLC	39,428	—	—	—
Impairment of cost-method investments	(8,565)	—	(5,062)	—
Foreign exchange and other gains (losses)	1,084	3,141	(7,523)	479
Income (loss) from continuing operations before tax	121,138	25,666	(9,420)	89,294
Income tax expense (benefit)	49,954	5,113	(7,151)	31,446
Losses from equity method investments	(16,719)	(18,679)	(2,223)	—
Net income (loss) from continuing operations	54,465	1,874	(4,492)	57,848
Discontinued Operations:				
Loss from discontinued operations, net of tax	(1,271)	(64,663)	(14,893)	—
Impairment of discontinued operations, net of tax	(78,283)	—	—	—
Net loss from discontinued operations	(79,554)	(64,663)	(14,893)	—
NET (LOSS) INCOME	**$ (25,089)**	**$ (62,789)**	**$ (19,385)**	**$ 57,848**

Net Sales

The table below illustrates net sales by operating segment and market geography (in thousands, except for percentages):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Equivalent Prior Period January 24, 2015 to December 31, 2015	Year 2017 Year 2016 % Change	Year 2016 Equivalent Year 2015 % Change
			(Unaudited)		
Cardiac Surgery					
United States	$ 177,805	$ 182,105	$ 48,960	(2.4)%	271.9%
Europe[1]	175,705	172,772	40,272	1.7%	329.0%
Rest of world	282,007	256,838	58,403	9.8%	339.8%
	635,517	611,715	147,635	3.9%	314.3%
Neuromodulation					
United States	316,916	298,453	240,138	6.2%	24.3%
Europe[1]	34,765	31,942	30,219	8.8%	5.7%
Rest of world	23,295	21,011	18,476	10.9%	13.7%
	374,976	351,406	288,833	6.7%	21.7%
Other	1,784	1,737	841	2.7%	106.5%
	$ 1,012,277	**$ 964,858**	**$ 437,309**	**4.9%**	**120.6%**

(1) Includes those countries in Europe where LivaNova has a direct sales presence. Countries where sales are made through distributors are included in 'Rest of world'.

The table below illustrates segment income from continuing operations (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Equivalent Prior Period January 24, 2015 to December 31, 2015	Year 2017 Year 2016 % Change	Year 2016 Equivalent Year 2015 % Change
			(Unaudited)		
Cardiac Surgery	$ 81,001	16,578	13,091	388.6%	26.6%
Neuromodulation	188,352	174,579	113,029	7.9%	54.5%
Other	(107,955)	(70,925)	(39,815)	52.2%	78.1%
TOTAL REPORTABLE SEGMENT INCOME FROM CONTINUING OPERATIONS[1]	**$ 161,398**	**$ 120,232**	**$ 86,305**	**34.2%**	**39.3%**

(1) For a reconciliation of segment income from continuing operations to our consolidated continuing operating income, refer to "Note 18. Geographic and Segment Information" in this Annual Report on Form 10-K, except for the Equivalent Prior Period January 24, 2015 to December 31, 2015, which includes the period January 24, 2015 to April 24, 2015, as compared to the Transitional period April 25, 2015 to December 31, 2015 used in the consolidated financial statements.

Cardiac Surgery

Cardiac Surgery net sales increased $23.8 million, or 3.9%, for the year ended December 31, 2017, as compared to the year ended December 31, 2016 due primarily to growth of $22.9 million in cardiopulmonary product revenue. Cardiopulmonary product sales increased year over year due to continued progress towards upgrading customers from our S3 heart-lung machines to our current S5 device, strong sales of our Inspire oxygenator and favorable foreign currency exchange rate fluctuations. Heart valve sales increased by $0.9 million for the year ended December 31, 2017 as compared to the year ended December 31, 2016, due to favorable foreign currency exchange rate fluctuations, which more than offset continuing global declines in traditional tissue and mechanical heart valves.

Cardiac Surgery operating income increased by $64.4 million or the year ended December 31, 2017 as compared to the year ended December 31, 2016 primarily driven by increased sales of $23.8 million combined with inventory fair value step-up amortization of $25.2 million that was recognized during the nine months ended September 30, 2016. The inventory fair value step-up was fully amortized by September 30, 2016.

Cardiac Surgery net sales for the year ended December 31, 2016 as compared to the equivalent prior period January 24, 2015 to December 31, 2015 increased by 314.3% because sales in the prior equivalent period were limited to the period October 19, 2015 (acquisition date for the Mergers) through December 31, 2015. Additionally, Cardiac Surgery operating income for the year ended December 31, 2016 as compared to the equivalent prior period January 24, 2015 to December 31, 2015 increased by 26.6% due to the acquisition date for the Mergers.

Neuromodulation

Neuromodulation net sales increased $23.6 million, or 6.7%, for the year ended December 31, 2017 as compared to the prior year ended December 31, 2016 primarily due to strong demand for the AspireSR VNS Therapy System and the launch of the SenTiva VNS Therapy System in October 2017.

The increase in Neuromodulation operating income for the year ended December 31, 2017, as compared to the prior-year period, was primarily driven by increased operating leverage as a result of higher net sales, partially offset by the increased costs associated with sales force expansion and marketing efforts in the U.S.

Neuromodulation net sales for the year ended December 31, 2016 increased $62.6 million, or 21.7%, as compared to the equivalent prior period January 24, 2015 to December 31, 2015, due primarily to pricing increases in the U.S. and to 17 fewer working days in the equivalent prior period.

Neuromodulation operating income increased $61.6 million for the year ended December 31, 2016, as compared to the equivalent prior period January 24, 2015 to December 31, 2015, due primarily to reporting corporate and intangible amortization expense for Cyberonics prior to the Mergers as Neuromodulation Business Franchise expenses rather than as 'Other' expenses.

Cost of Sales and Expenses

The table below illustrates our cost of sales and major expenses as a percentage of net sales:

	Year Ended December 31, 2017	Year Ended December 31, 2016	Equivalent Prior Period January 24, 2015 to December 31, 2015
			(Unaudited)
Cost of sales	34.9%	38.1%	27.7%
Product remediation	0.7%	3.9%	—%
Gross profit	64.4%	58.0%	72.3%
Operating expenses:			
Selling, general and administrative	37.6%	37.0%	40.4%
Research and development	10.8%	8.5%	12.0%
Merger and integration expenses	1.5%	2.1%	14.7%
Restructuring expenses	1.7%	3.9%	2.4%
Amortization of intangibles	3.3%	3.2%	1.8%
Total operating expenses	54.9%	54.7%	71.3%

Cost of Sales

Cost of sales consisted primarily of direct labor, allocated manufacturing overhead, the acquisition cost of raw materials and components.

Cost of sales as a percentage of net sales was 34.9% for the year ended December 31, 2017; a decrease of 3.2% as compared to the prior year ended December 31, 2016. This decrease was due to the decrease in amortization of inventory written-up in the Mergers related to the Cardiac Surgery Segment of $25.2 million, which accounted for 2.6% of net sales for the year ended December 31, 2016.

Cost of sales as a percentage of net sales was 38.1% for the year ended December 31, 2016; an increase of 10.4% as compared to the equivalent period ended December 31, 2015. This increase was primarily due to the inclusion of Sorin's Cardiac Surgery Business Franchise activities for the full year in 2016 as compared to its inclusion in the prior equivalent period for October 19, 2015 (acquisition date for the Mergers) through December 31, 2015.

Selling, General and Administrative ("SG&A") Expenses

SG&A expenses are comprised of sales, marketing, general and administrative activities. SG&A expenses exclude expenses incurred in connection with the merger between Cyberonics and Sorin, integration costs after the Mergers and restructuring costs under the Restructuring Plans initiated after the Mergers.

SG&A expenses as a percentage of net sales for the year ended December 31, 2017 increased 0.6% to 37.6% as compared to the prior year ended December 31, 2016. This increase was largely attributable to litigation related to our 3T devices, costs associated with acquisitions and other legal matters.

SG&A expenses as a percentage of net sales for the year ended December 31, 2016 decreased 3.4% to 37.0% as compared to the equivalent prior period ended December 31, 2015. This reduction was due to our integration and re-organization efforts that capitalized on synergies between Cyberonics and Sorin's Cardiac Surgery segment.

Research and Development ("R&D") Expenses

R&D expenses consist of product design and development efforts, clinical study programs and regulatory activities, which are essential to the Company's strategic portfolio initiatives, including TMVR, Treatment Resistant Depression and Heart Failure.

R&D expenses as a percentage of net sales for the year ended December 31, 2017 increased by 2.3% to 10.8% as compared to the prior year ended December 31, 2016. The increase was primarily due to the acquisition of Caisson in May 2017, inclusive of $5.8 million in post-combination compensation expense recognized concurrent with the acquisition of Caisson, and $7.2 million in compensation expense associated with the retention of the employees of Caisson. The additional increase as compared to the prior year was due to increased investment in clinical and registries pertaining to TMVR and Heart Failure.

R&D expenses as a percentage of net sales for the year ended December 31, 2016 decreased by 3.5% to 8.5% as compared to the prior equivalent period ended December 31, 2015. This decrease was primarily due to completion of work, adaption to longer developmental schedules or cancellation of work in 2016.

Merger and Integration Expenses

Merger and integration expenses consisted primarily of consulting costs associated with computer systems integration efforts, organization structure integration, synergy and tax planning, as well as the integration of internal controls for the two legacy organizations. In addition, integration expenses include retention bonuses, branding and renaming efforts and lease cancellation penalties in Milan and Brussels.

Merger and integration expenses as a percentage of net sales decreased to 1.5% for the year ended December 31, 2017 as compared 2.1% for the year ended December 31, 2016, and 14.7% for the equivalent period ended December 31, 2015, due to the continued decline in integration activities associated with the Mergers.

Restructuring Expenses

Our restructuring plans (the "Plans") leverage economies of scale, eliminate duplicate corporate expenses and streamline distributions, logistics and office functions in order to reduce overall costs. Restructuring expenses are detailed in "Note 5. Restructuring Plans" in the consolidated financial statements in this Annual Report on Form 10-K. Our 2015 and 2016 Reorganization Plans (the "Plans") were initiated October 2015 and March 2016, respectively, in conjunction with the completion of the Mergers. The Plans included the Costa Rica manufacturing operation exit plan, initiated in December 2016 and completed during 2017, and the Suzhou, China exit plan, initiated in March 2017.

Restructuring expenses as a percentage of net sales decreased to 1.7% from 3.9% for the year ended December 31, 2017 as compared to the year ended December 31, 2016 as our restructuring activities declined and continue to decline. For the equivalent period ended December 31, 2015, restructuring expenses were 2.4% as a percentage of net sales.

Amortization of Intangibles

Amortization of intangibles includes the amortization of finite-lived intangible assets, primarily intellectual property and customer relationships, acquired at fair value in the Mergers in October 2015. Amortization of intangibles does not include amortization of the step-up of inventory to fair value at the Mergers, which was reported as a component of cost of sales. Prior to the Mergers, Cyberonics' intangible asset amortization was primarily related to intellectual property utilized in R&D activities.

Interest Expense

We incurred interest expense of $7.8 million for the year ended December 31, 2017, as compared to $10.6 million for the year ended December 31, 2016. The decrease was primarily due a reduction in income tax related interest expense for our inter-company sale of intellectual property for the year ended December 31, 2017, as compared to the prior year as a result of a reduction in the income tax liability. We incurred interest expense of $1.5 million for the equivalent prior period January 24, 2015 to December 31, 2015 based on third-party debt acquired in the Mergers on October 19, 2015.

Gain on Caisson Acquisition

On May 2, 2017, we acquired the remaining 51% equity interests in Caisson, which we previously accounted for under the equity method. On the acquisition date, we remeasured our notes receivable due from Caisson and our existing investment in Caisson at fair value and recognized a pre-tax non-cash gain of $1.3 million and $38.1 million , respectively.

Impairment of Cost-Method Investments

During December 2017, we impaired our cost-method investments in Respicardia and Rainbow Medical, in the amounts of $5.5 million and $3.0 million, respectively. Refer to Note 8 to the consolidated financial statements in "Item 8. Financial Statements and Supplementary Data" in this Annual Report on Form 10-K.

During the equivalent prior period January 24, 2015 to December 31, 2015, we fully impaired our cost-method investment in Cerbomed, a European company developing a t-VNS device for epilepsy treatment, for a loss of $5.1 million.

Foreign Exchange ("FX") and Other

Due to the global nature of our continuing operations, we are exposed to foreign currency exchange rate fluctuations. Foreign exchange and other gains were $1.1 million for the year ended December 31, 2017, consisting of net FX losses of $2.1 million associated with intercompany debt and third-party financial assets and liabilities denominated in foreign currencies, net of the impact of foreign currency derivative contracts established to hedge against exchange rate movements, offset by a $3.2 million gain on a sale of the cost-method investment, Istituto Europeo di Oncologia S.R.L.

Foreign Exchange and Other consisted of net FX gains of $3.1 million for the year ended December 31, 2016, primarily the result of our inter-company financing arrangements, and third-party financial assets and liabilities denominated in foreign currencies, net of the impact of foreign currency derivative contracts established to hedge against exchange rate movements.

Foreign Exchange and Other consisted of net FX losses of $7.5 million for the equivalent prior period ended December 31, 2015, which included a loss of $5.6 million from foreign currency derivative contracts established to hedge against exchange rate movements on the loan from the European Investment Bank and other loans. The loss on the hedge was recorded in our consolidated statements of income (loss), whereas the hedged instruments' gains were recorded in comprehensive income in our consolidated financial statements.

Income Taxes

LivaNova PLC is domiciled and resident in the UK. Our subsidiaries conduct operations and earn income in numerous countries and are subject to the laws of taxing jurisdictions within those countries, and the income tax rates imposed in the tax jurisdictions in which our subsidiaries conduct operations vary. As a result of the changes in the overall level of our income, the deployment of various tax strategies and the changes in tax laws, our consolidated effective income tax rate may vary from one reporting period to another.

During the years ended December 31, 2017 and December 31, 2016, we recorded income tax expense from continuing operations of $50.0 million and $5.1 million, respectively, with effective income tax rates of 41.2% and 19.9%, respectively. During the equivalent prior period ended December 31, 2015, we recorded an income tax benefit from continuing operations of $7.2 million and an effective income tax rate of 75.9%.

Our 41.2% effective income tax rate for the year ended December 31, 2017 included the impact of various discrete tax items, including the non-cash net charge of $27.5 million recorded as a result of the U.S. Tax Cuts and Jobs Act and the acquisition of Caisson, inclusive of the $38.1 million non-taxable gain recognized to re-measure our existing equity investments in Caisson at fair value on the acquisition date.

Our 19.9% effective income tax rate for the year ended December 31, 2016 included the impact of various discrete tax items, primarily related to a reduction in valuation allowances in the U.S. related to capital loss carryforwards, partially offset by an increase in tax expense related to an unrecognized tax benefit from a tax position taken in prior years.

Our 75.9% effective income tax rate for the equivalent prior period January 24, 2015 to December 31, 2015, included the impact of various discrete tax items, primarily related to an increase in tax expense resulting from non-deductible transaction costs associated with the merger of Cyberonics and Sorin and an increase in tax expense due to the change in the corporate income tax rate in Italy.

U.S. Tax Reform

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (the "Act"). The Act, which is also commonly referred to as "U.S. tax reform", significantly changes U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21% commencing in 2018. In addition, the Act created a one-time mandatory tax, a toll charge, on previously deferred foreign earnings of non-U.S. subsidiaries controlled by a U.S. corporation, or, in our case, a non-U.S. subsidiary controlled by one of our U.S. subsidiaries. We recorded no toll charge for the year ended December 31, 2017 as we had no previously deferred foreign earnings of U.S. controlled foreign subsidiaries as of the measurement dates. As a result of the Act, we recorded a non-cash net charge of $27.5 million during the fourth quarter of 2017, which is included in Income tax expense (benefit) in the consolidated statement of (loss) income. This amount primarily consists of two components: (i) $12.8 million relating to the impairment of foreign tax credits, and (ii) a net $14.7 million charge resulting from the remeasurement of our deferred tax assets and liabilities in the U.S. based on the change in the U.S. federal corporate income tax rate.

The Act also establishes various other new U.S. corporate income tax laws that will affect 2018, including, but not limited to, (1) elimination of the corporate alternative minimum tax (AMT); (2) the creation of the base erosion anti-abuse tax (BEAT), a new minimum tax; (3) a new provision designed to tax global intangible low-taxed income (GILTI); (4) a new limitation on deductible interest expense; (5) the repeal of the domestic production activity deduction; (6) limitations on the deductibility of certain executive compensation; and (7) limitations on net operating losses (NOLs) generated after December 31, 2017, to 80 percent of taxable income. The extent to which these and other provisions of the Act, or future legislation or regulations, could impact our consolidated effective income tax rate in future periods depends on many factors including, but not limited to, the amount of profit generated by our subsidiaries operating in the U.S., the impact of the Company's current or contemplated tax planning strategies, the impact of new or amended tax laws or regulations by countries outside the U.S., and other factors beyond our control.

Further regulations and notices and state conformity could be issued as a result of U.S. tax reform covering various issues that may affect our tax position including, but not limited to, an increase in the corporate state tax rate and elimination of the interest deduction. The content of any future legislation, the timing for regulations, notices, and state conformity, and the reporting periods that would be impacted cannot be determined at this time. Although we believe the net charge of $27.5 million is a reasonable estimate of the impact of the income tax effects of the Act on LivaNova as of December 31, 2017, the estimate is provisional. Once we finalize certain tax positions for our 2017 U.S. consolidated tax return, we will be able to conclude whether any further adjustments to our tax positions are required.

Brexit

On June 23, 2016, the UK held a referendum in which voters approved an exit from the EU, commonly referred to as "Brexit." On March 29, 2017, the UK government gave formal notice of its intention to leave the EU, formally commencing the negotiations regarding the terms of withdrawal between the UK and the EU. The withdrawal must occur within two years, unless the deadline is extended. The negotiation process will determine the future terms of the UK's relationship with the EU. The notification does not change the application of existing tax laws, and does not establish a clear framework for what the ultimate outcome of the negotiations and legislative process will be.

Various tax reliefs and exemptions that apply to transactions between EU Member States under existing tax laws may cease to apply to transactions between the UK and EU Member States when the UK ultimately withdraws from the EU. It is unclear at this stage if or when any new tax treaties between the UK and the EU or individual EU Member States will replace those reliefs and exemptions. It is also unclear at this stage what financial, trade and legal implications will ensue from Brexit and how Brexit may affect us, our customers, suppliers, vendors, or our industry.

Several of our wholly owned subsidiaries that are domiciled either in the UK, various EU Member States, or in the United States, and our parent company, LivaNova PLC, are party to intercompany transactions and agreements under which we receive various tax reliefs and exemptions in accordance with applicable international tax laws, treaties and regulations. If certain treaties applicable to our transactions and agreements are not renegotiated or replaced with new treaties containing terms, conditions and attributes similar to those of the existing treaties, Brexit may have a material adverse impact on our future financial results and results of operations. During the two-year negotiation period, we will monitor and assess the potential impact of this event and explore possible tax-planning strategies that may mitigate or eliminate any such potential adverse impact. We will not account for the impact of Brexit in our income tax provisions until changes in tax laws or treaties between the UK and the EU or individual EU Member States with the UK and/or the U.S. are enacted or the withdrawal becomes effective.

European Union State Aid Challenge

On October 26, 2017, the European Commission ("EC") announced that an investigation will be opened with respect to the UK's controlled foreign company ("CFC") rules. The CFC rules under investigation provide certain tax exceptions to entities controlled by UK parent companies that are subject to lower tax rates if the activities being undertaken by the CFC relate to financing. The EC is investigating whether the exemption is a breach of EU State Aid rules. The investigation is in its early stages and is unlikely to be completed within the next twelve months with an appeal process likely to follow. It is unclear as to whether the UK will be part of the EU once a decision has been finalized due to Brexit and what impact, if any, Brexit will have on the outcome of the investigation or the enforceability of a decision. Due to the many uncertainties related to this matter, including the preliminary state of the investigation, the pending Brexit negotiations and political environment and the unknown outcome of the investigation and resulting appeals, no uncertain tax position reserve has been recognized related to this matter and we are unable to reasonably estimate the potential liability.

Equity Method Investments

Losses from equity method investments were $16.7 million during the year ended December 31, 2017 were due to investee losses of Highlife, MicroPort and Caisson and the impairment of our investment in, and notes receivable from Highlife of $13.0 million; consisting of investment impairment of $4.7 million and the notes receivable impairment of $8.3 million. In May 2017, we acquired the remaining equity interests in Caisson and we began consolidating the results of Caisson as of the acquisition date.

We recognized equity method losses of $18.7 million for the year ended December 31, 2016 due to investee losses of Caisson, Highlife, Microport and Respicardia and the impairment of our investment in Respicardia of $9.2 million. In November 2016, we terminated our distributor agreement with Respicardia. The distributor agreement had been a key component in the determination of whether our influence over Respicardia was significant, and as a result, we determined that we no longer had significant influence over Respicardia and transferred the investment to our cost method investments.

We recognized losses of $2.2 million from our share of investee losses at Highlife, Caisson, Respicardia and MicroPort during the equivalent prior period ended December 31, 2015. All the equity method investments were acquired in the Mergers and therefore investee losses were included in our consolidated statement of (loss) income in "Item 8. Financial Statements and Supplementary Data" in this Annual Report on Form 10-K beginning October 19, 2015.

Results of Discontinued Operations

The table below illustrates the results of discontinued operations (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015
Discontinued Operations:			
Loss from discontinued operations, net of tax	(1,271)	(64,663)	(14,893)
Impairment of discontinued operations, net of tax	(78,283)	—	—
NET LOSS FROM DISCONTINUED OPERATIONS	**(79,554)**	**(64,663)**	**(14,893)**

On November 20, 2017, we entered into a letter of intent ("LOI") to sell our CRM Business Franchise ("CRM") to MicroPort Scientific Corporation for $190.0 million in cash. Completion of the transaction is subject to receipt of relevant regulatory approvals, including fulfilling the requirements of the Hong Kong Stock Exchange's Major Transaction requirements, and other customary closing conditions. We expect the transaction to close in the second quarter of 2018.

CRM develops, manufactures and markets products for the diagnosis, treatment and management of heart rhythm disorders and heart failures. CRM products include high-voltage defibrillators, cardiac resynchronization therapy devices and low-voltage pacemakers. CRM has approximately 900 employees, with operations in Clamart, France; Saluggia, Italy; and Santo Domingo, Dominican Republic.

We concluded that the sale of CRM represents a strategic shift and therefore qualifies as a discontinued operation under GAAP. As a result, we classified the operating results of CRM as discontinued operations in our consolidated statements of (loss) income. Additionally, we tested the long-lived assets of CRM for impairment and recognized an impairment to tangible and intangible assets of $78.3 million, net of a $15.3 million tax benefit. The assets and liabilities of CRM are classified as assets (or liabilities) of discontinued operations on the consolidated balance sheets at December 31, 2017 and December 31, 2016 in "Item 8. Financial Statements and Supplementary Data" in this Annual Report on Form 10-K.

Significant Accounting Policies and Critical Accounting Estimates

We have adopted various accounting policies to prepare the consolidated financial statements in accordance with accounting principles generally accepted in the United States ("U.S. GAAP"). Our most significant accounting policies are disclosed in "Note 2. Basis of Presentation, Use of Accounting Estimates and Significant Accounting Policies" in the consolidated financial statements. New accounting pronouncements are disclosed in "Note 21. New Accounting Pronouncements" in the consolidated financial statements.

To prepare our consolidated financial statements in conformity with U.S. GAAP, management makes estimates and assumptions that may affect the reported amounts of our assets and liabilities, the disclosure of contingent liabilities as of the date of our consolidated financial statements and the reported amounts of our revenue and expenses during the reporting period. Our actual results may differ from these estimates. We consider estimates to be critical if we are required to make assumptions about material matters that are uncertain at the time of estimation, or if materially different estimates could have been made or it is reasonably likely that the accounting estimate will change from period to period. The following are areas requiring management's judgment that we consider critical:

Business Combinations

We allocate the amounts we pay for each acquisition to the assets we acquire and liabilities we assume based on their fair values at the dates of acquisition, including identifiable intangible assets and in-process research and development which either arise from a contractual or legal right or are separable from goodwill. We base the fair value of identifiable intangible assets acquired in a business combination, including in-process research and development, on detailed valuations that use information and assumptions provided by management, which consider management's best estimates of inputs and assumptions that a market participant would use. We allocate any excess purchase price over the fair value of the net tangible and identifiable intangible assets acquired to goodwill. Transaction costs associated with these acquisitions are expensed as incurred and are reported as operating expenses.

Intangible Assets

Intangible assets shown on the consolidated balance sheet are finite-lived assets. Developed technology rights consist primarily of purchased patents, related know-how and licensed patent rights. Tradenames include the Sorin trade name acquired

as part of the Mergers. Customer relationships consist of relationships with hospitals and physicians in the countries where we operate. We amortize our intangible assets over their useful lives using the straight-line method.

Amortization expense for developed technology is recorded in research and development and cost of goods sold. When the product is marketed, we amortize the remaining carrying value of the intangible asset to cost of goods sold. Amortization expense for trade name and customer relationships is recorded in selling, general and administrative expense. We evaluate our intangible assets each reporting period to determine whether events and circumstances indicate either a different useful life or impairment. If we change our estimate of the useful life of an asset, we amortize the carrying amount over the revised remaining useful life.

Impairment of Property and Equipment and Intangible Assets

We review, when circumstances warrant, the carrying amounts of our property and equipment and our intangible assets to determine whether such carrying amounts continue to be recoverable. Such changes in circumstance may include, among other items, (i) an expectation of a sale or disposal of a long-lived asset or asset group, (ii) adverse changes in market or competitive conditions, (iii) an adverse change in legal factors or business climate in the markets in which we operate and (iv) operating or cash flow losses. For purposes of impairment testing, long-lived assets are grouped at the lowest level for which cash flows are largely independent of other assets and liabilities, generally at or below the reporting unit level. If the carrying amount of the asset or asset group is greater than the expected undiscounted cash flows to be generated by such asset or asset group, an impairment adjustment is recognized. Such adjustment is measured by the amount that the carrying value of such asset or asset group exceeds its fair value. We generally measure fair value by considering (a) sale prices for similar assets, (b) discounted estimated future cash flows using an appropriate discount rate and/or (c) estimated replacement cost. Assets to be disposed of are carried at the lower of their financial statement carrying amount or fair value less costs to sell.

We evaluate the goodwill and indefinite-lived intangible assets for impairment at least annually on October 1st and whenever other facts and circumstances indicate that the carrying amounts of goodwill and other indefinite-lived intangible assets may not be recoverable. For impairment evaluations with respect to both goodwill and other indefinite-lived intangibles, we first make a qualitative assessment to determine if the goodwill or other indefinite-lived intangible may be impaired. In the case of goodwill, if it is more-likely-than-not that a reporting unit's fair value is less than its carrying value, we then compare the fair value of the reporting unit to its respective carrying amount. A reporting unit is an operating segment or one level below an operating segment (referred to as a "component"). Our operating segments are deemed to be our reporting units. If the carrying value of a reporting unit were to exceed its fair value, we would then compare the implied fair value of the reporting unit's goodwill to its carrying amount, and any excess of the carrying amount over the fair value would be charged to operations as an impairment loss. With respect to indefinite-lived intangible assets, if it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is less than its carrying value, we then estimate its fair value and any excess of the carrying value over the fair value of the indefinite-lived intangible asset is also charged to operations as an impairment loss.

Derivatives

U.S. GAAP requires companies to recognize all derivatives as assets and liabilities on the balance sheet and to measure the instruments at fair value through earnings unless the derivative qualifies for hedge accounting. If the derivative qualifies for hedge accounting, depending on the nature of the hedge and hedge effectiveness, changes in the fair value of the derivative will either be recognized immediately in earnings or recorded in other comprehensive income (loss) until the hedged item is recognized in earnings upon settlement/termination. The changes in the fair value of the derivative are intended to offset the change in fair value of the hedged asset, liability or probable commitment. We evaluate hedge effectiveness at inception and on an ongoing basis. If a derivative is no longer expected to be highly effective, hedge accounting is discontinued. Hedge ineffectiveness, if any, is recorded in earnings. Cash flows from derivative contracts are reported as operating activities in the consolidated statements of cash flows.

We use currency exchange rate derivative contracts and interest rate derivative instruments, to manage the impact of currency exchange and interest rate changes on earnings and cash flows. In order to minimize earnings and cash flow volatility resulting from currency exchange rate changes, we enter into derivative instruments, principally forward currency exchange rate contracts. These contracts are designed to hedge anticipated foreign currency transactions and changes in the value of specific assets and liabilities. At inception of the forward contract, the derivative is designated as either a freestanding derivative or a cash flow hedge. We do not enter into currency exchange rate derivative contracts for speculative purposes. All derivative instruments that qualify for hedge accounting are recorded at fair value on the consolidated balance sheets, as financial asset or liabilities (current or non-current) depending upon the gain or loss position of the contract and contract maturity date.

Forward contracts designated as cash flow hedges are designed to hedge the variability of cash flows associated with forecasted transactions denominated in a foreign currency that will take place in the future. For derivative instruments that are designated and qualify as a cash flow hedge, the effective portion of the gain or loss on the derivative instrument is reported as a component of accumulated other comprehensive income (loss) and reclassified into earnings to offset exchange differences originated by the hedged item or to adjust the value of operating income (expense).

We use freestanding derivative forward contracts to offset exposure to the variability of the value associated with assets and liabilities denominated in a foreign currency. These derivatives are not designated as hedges, and therefore changes in the value of these forward contracts are recognized in earnings, thereby offsetting the current earnings effect of the related change in value of foreign currency denominated assets and liabilities.

We use interest rate derivative instruments designated as cash flow hedges to manage the exposure to interest rate movements and to reduce the risk of an increase in borrowing costs by converting floating-rate debt into fixed-rate debt. Under these agreements, we agree to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to agreed-upon notional principal amounts. The interest rate swaps are structured to mirror the payment terms of the underlying loan. The fair value of the interest rate swaps is reported in the consolidated balance sheets financial assets or liabilities (current or non-current) depending upon the gain or loss position of the contract and the maturity of the future cash flows of the fair value of each contract. The effective portion of the gain or loss on these derivatives is reported as a component of accumulated other comprehensive income and reclassified to interest expense in the consolidated statement of (loss) income when the underlying position is settled. The non-effective portion is reported in interest expense in consolidated statement of (loss) income.

Cost and Equity Method Investments

Certain of the Company's investments in equity and other securities are strategic investments in companies that are in varied stages of development. These investments are included in Investments on the consolidated balance sheets. The Company accounts for these investments under the cost or the equity method of accounting, as appropriate. The valuation of equity and other securities accounted for under the cost method considers all available financial information related to the investee, including valuations based on recent third-party equity investments in the investee. If an unrealized loss for any investment is considered to be other-than-temporary, the loss is recognized in the consolidated statements of income in the period the determination is made. Equity securities accounted for under the equity method are initially recorded at the amount of the Company's investment and are adjusted each period for the Company's share of the investee's income or loss and dividends paid. Equity securities accounted for under both the cost and equity methods are reviewed quarterly for changes in circumstance or the occurrence of events that suggest the Company's investment may not be recoverable.

Stock-Based Compensation

Our stock option awards and stock appreciation rights compensation expense is based on the fair market value of our awards and is amortized ratably over the award vesting period. The fair market value is determined using the Black-Scholes option pricing methodology at the grant date. This methodology takes into account variables such as the future expected volatility of our stock price, the amount of time expected to elapse between the date of grant and the date of exercise and a risk-free interest rate. Fair values of stock option awards and stock appreciation rights issued in the future may vary significantly from fair values of awards issued in the current period depending on our estimates, and judgments regarding these variables, and therefore expense in future periods, may differ significantly from current-period expense. Refer to "Note 2. Basis of Presentation, Use of Accounting Estimates and Significant Accounting Policies" accompanying the consolidated financial statements for further information related to key assumptions.

Income Taxes

We are a UK corporation, and we operate through our various subsidiaries in a number of countries throughout the world. Our provision for income taxes is based on the tax laws and rates applicable in the jurisdictions in which we operate and earn income. We use significant judgment and estimates in accounting for our income taxes. This involves assessing changes in temporary differences resulting from differing treatment of events for tax and accounting purposes. These assessments result in deferred tax assets and liabilities, which are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Actual tax expense may significantly differ from our expectations if, for example, judicial interpretations of tax law, tax regulations or tax rates change.

We file federal and local tax returns in many jurisdictions throughout the world and are subject to income tax examinations for our fiscal year 1992 and subsequent years, with certain exceptions. Tax authorities may disagree with certain positions we have taken and assess additional taxes and as a result, we may establish reserves for uncertain tax positions, which require a significant degree of management judgment. We regularly assess the likely outcomes of our tax positions in order to determine the appropriateness of our reserves for uncertain tax positions; however, the actual outcome of an audit can be significantly different than our expectations, which could have a material impact on our tax provision. The total amount of unrecognized tax benefit, as of December 31, 2017, if recognized, would reduce our income tax expense by approximately $26.1 million.

We are required to periodically assess the recoverability of our deferred tax assets by considering whether it is more likely than not that some or all of the actual benefit of those assets will be realized. To the extent that realization does not meet the "more-likely-than-not" criterion, we establish a valuation allowance. We periodically review the adequacy and necessity of the valuation allowance by considering significant positive and negative evidence relative to our ability to recover deferred tax assets and to determine the timing and amount of valuation allowance that should be released. Changes in our assessment of the factors related to the recoverability of our deferred tax assets could result in materially different income tax provisions. As of December 31, 2017, we had valuation

allowances of $47.4 million that were primarily related to net operating losses in certain jurisdictions and U.S. tax credits. If these valuation allowances were to be released our tax expense would be reduced by $47.4 million.

On December 22, 2017, the Tax Cuts and Jobs Act was signed into U.S. law which provided numerous amendments to the Internal Revenue Code of 1986. The Tax Cuts and Jobs Act may impact our U.S. income tax expense (benefit) from continuing operations in future periods.

Foreign Currency

Our functional currency is the U.S. dollar, however, a portion of the revenues earned and expenses incurred by certain of our subsidiaries are denominated in currencies other than the U.S. dollar. We determine the functional currency of our subsidiaries that exist and operate in different economic and currency environments based on the primary economic environment in which the subsidiary operates, that is, the currency of the environment in which an entity primarily generates and expends cash. Our significant foreign subsidiaries are located in Europe and the U.S. The functional currency of our significant European subsidiaries is the Euro and the functional currency of our significant U.S. subsidiaries is the U.S. dollar.

Assets and liabilities for subsidiaries whose functional currency is not the U.S. dollar are translated into U.S. dollars based on a combination of both current and historical exchange rates, while their revenues earned and expenses incurred are translated into U.S. dollars at average period exchange rates. Translation adjustments are included as 'Accumulated other comprehensive income (loss)' ("AOCI") in the consolidated balance sheets. Gains and losses arising from transactions denominated in a currency different from an entity's functional currency are included in Foreign exchange and other gains (losses) in our consolidated statements of income (loss). Taxes are not provided on cumulative translation adjustments, as substantially all translation adjustments are related to earnings which are intended to be indefinitely reinvested in the countries where earned.

Liquidity and Capital Resources

Based on our current business plan, we believe that our existing cash and cash equivalents and future cash generated from operations will be sufficient to fund our expected operating needs, working capital requirements, R&D opportunities, capital expenditures and debt service requirements over the next 12 months. We regularly review our capital needs and consider various investing and financing alternatives to support our requirements. Refer to "Note 10. Financing Arrangements" in the consolidated financial statements in this Annual Report on Form 10-K for additional information regarding our debt. Our liquidity could be adversely affected by the factors affecting future operating results, including those referred to in "Item 1A. Risk Factors" above.

Cash Flows

Net cash and cash equivalents provided by (used in) operating, investing and financing activities and the net increase (decrease) in the balance of cash and cash equivalents were as follows (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Operating activities	$ 91,339	$ 90,151	$ (9,288)	$ 79,676
Investing activities	(52,855)	(44,516)	16,182	(9,765)
Financing activities	11,294	(118,039)	(18,127)	(48,256)
Effect of exchange rate changes on cash and cash equivalents	4,048	(420)	(341)	(767)
NET (DECREASES) INCREASE	**$ 53,826**	**$ (72,824)**	**$ (11,574)**	**$ 20,888**

Operating Activities

Cash provided by operating activities for the year ended December 31, 2017 $91.3 million, primarily due to adjustments to net income of $220.0 million for non-cash items, which included a non-cash loss of $93.6 million related to the impairment of tangible and intangible assets of our discontinued operations, and depreciation and amortization of $82.9 million, offset by utilization of cash for operating assets and liabilities of $103.6 million.

Cash provided by operating activities for the year ended December 31, 2016 was $90.2 million, primarily due to a net loss of $62.8 million offset by $161.3 million of non-cash items. Non-cash items were principally composed of $85.4 million in depreciation and amortization and $19.6 million in stock-based compensation.

During the transitional period April 25, 2015 to December 31, 2015, cash utilized in operating activities was $9.3 million, which was net of amortization of $36.3 million related to Sorin's inventory written-up in the Mergers. In connection with the Mergers we acquired $233.8 million of Sorin inventory as of October 19, 2015. In addition, we utilized operating cash for payment of accrued merger costs, which primarily accounted for the decrease in our balance of accounts payable and accrued liabilities of $32.8 million.

Cash provided by operating activities for the historical Cyberonics fiscal year ended April 24, 2015 was $79.7 million, which was primarily attributable to net income of $57.8 million and non-cash operating expense and FX losses of $28.2 million, offset by $6.3 million utilized by operating assets and liabilities, primarily to build inventories.

Investing Activities

Cash used in investing activities was $52.9 million during the year ended December 31, 2017. We invested $34.1 million in property, plant and equipment. We also utilized cash of $27.9 million related to our investments in privately held medical start-up companies, which included the purchase of the 51% of the remaining interest in Caisson utilizing cash of $14.2 million, and investments in, and loans to, our equity and cost method investees of $13.7 million.

Cash used in investing activities was $44.5 million during the year ended December 31, 2016, primarily due to $38.4 million invested in property, plant and equipment and investments in, and loans to, our equity and cost method investees of $14.3 million. These amounts were partially offset by the transfer of $7.0 million to cash and cash equivalents from short-term investments.

Cash provided in investing activities of $16.2 million during the transitional period April 25, 2015 to December 31, 2015 was due to the transfer of $20.0 million to cash and cash equivalents from short-term investments and an increase in cash of $12.5 million obtained in the Mergers, offset by net investment activity of $16.3 million, primarily for property, plant and equipment.

Cash used in investing activities was $9.8 million during the fiscal year ended April 24, 2015. We invested $1.9 million in commercial paper. We also invested $6.7 million in property, plant and equipment primarily due to construction of the Costa Rica manufacturing facility. We also invested $1.2 million in Cerbomed, which was fully impaired during the transitional period April 25, 2015 to December 31, 2015.

Financing Activities

Cash used in financing activities during the year ended December 31, 2017 was $11.3 million, which includes $32.4 million in borrowings under our revolving credit facilities and repayment of long-term debt of $22.8 million. We also borrowed $2.0 million in additional long-term debt.

Cash used in financing activities during the year ended December 31, 2016 was $118.0 million, which includes $54.5 million to repurchase shares, a $33.7 million reduction in revolving credit facilities, repayment of advances on customer receivables of $23.8 million and repayment of long-term debt of $21.1 million. We also borrowed $7.2 million in additional long-term debt.

Cash used in financing activities during the transitional period April 25, 2015 to December 31, 2015 was $18.1 million, which included the repayment of long-term debt of $32.0 million, and the purchase of treasury shares for $7.3 million, partially offset by cash proceeds from net short-term debt borrowing of $11.1 million and stock based compensation activities of $8.8 million.

Cash used in financing activities during the year ended April 24, 2015 was $48.3 million, which was primarily due to stock repurchases of $55.0 million.

Debt and Capital

Our capital structure consists of debt and equity. As of December 31, 2017, our total debt of $146 million was 8.0% of total equity of $1.8 billion. As of December 31, 2016, our total debt of $123 million was 7.2% of total equity of $1.7 billion.

Debt Acquired in the Mergers

At the consummation of the Mergers on October 19, 2015, LivaNova acquired all of the outstanding debt of Sorin in the aggregate principal amount of $203.0 million payable to various financial and non-financial institutions. Prior to the Mergers Cyberonics had no debt.

Debt – Post Mergers

During the year ended December 31, 2017, we increased our outstanding revolving credit facilities by $32.4 million, repaid $22.8 million of long-term debt obligations and borrowed $2.0 million in additional long-term debt.

During the year ended December 31, 2016, we reduced our outstanding revolving credit facilities by $33.7 million, repaid $21.1 million of long-term debt obligations and borrowed $7.2 million in additional long-term debt.

Factoring

During the year ended December 31, 2016, we reduced our obligation for advances on customer receivables by $23.8 million, thereby eliminating this form of financing.

Contractual Obligations

We have various contractual commitments that we expect to fund from existing cash, future operating cash flows and borrowings under our revolving credit facilities. The actual timing of the clinical commitment payments may vary based on the completion of milestones which are beyond our control.

The following table summarizes our significant contractual obligations as of December 31, 2017 and the periods in which such obligations are due (in thousands):

	Less Than One Year	One to Three Years	Three to Five Years	Thereafter	Total Contractual Obligations
Principal payments on short-term debt	$ 58,190	$ —	$ —	$ —	$ 58,190
Principal payments on long-term debt	25,844	46,793	13,828	1,337	87,802
Interest payments on long-term debt	788	848	161	19	1,816
Operating leases	13,584	21,198	12,917	24,632	72,331
Caisson deferred consideration	14,300	—	—	—	14,300
Inventory supply contract obligations	2,136	22,678	—	—	24,814
Derivative instruments	1,294	719	32	—	2,045
Other commitments	588	16	—	502	1,106
TOTAL CONTRACTUAL OBLIGATIONS[1]	**$ 116,724**	**$ 92,252**	**$ 26,938**	**$ 26,490**	**$ 262,404**

(1) Contractual obligations do not include $26.1 million of unrecognized tax benefits, inclusive of interest and penalties, included on our consolidated balance sheet as of December 31, 2017. We are unable to specify with certainty the future periods in which we may be obligated to settle such amounts.

We have other commitments that we are contractually obligated to fulfill with cash under certain circumstances. These commitments include letters of credit to guarantee our performance as it relates to our contract bidding, VAT tax, tax appeals, and other obligations in various jurisdictions. Obligations under these guarantees are not normally called, as we typically comply with underlying performance requirements. As of December 31, 2017, no liability has been recorded in the financial statements associated with these obligations.

The following table summarizes our guarantees as of December 31, 2017 (in thousands):

	Less Than One Year	One to Three Years	Three to Five Years	Thereafter	Total Guarantees
Guarantees on governmental bids[1]	$ 17,574	$ 8,193	$ 5,431	$ 863	$ 32,061
Guarantees - commercial[2]	962	3,165	29	481	4,637
Guarantees to tax authorities[3]	242	1,291	10,833	—	12,366
Guarantees to third-parties[4]	—	—	—	153	153
TOTAL GUARANTEES	**$ 18,778**	**$ 12,649**	**$ 16,293**	**$ 1,497**	**$ 49,217**

(1) Government bid guarantees include such items as unconditional bank guarantees, irrevocable letters of credit and bid bonds.
(2) Commercial guarantees include our lease and tenancy guarantees.
(3) The guarantees to the governmental tax authorities consist primarily of the guarantee issued to the Italian VAT Authority.
(4) Guarantees to third-parties consist primarily of irrevocable letters of credit and tenancy guarantees.

Market Risk

We are exposed to certain market risks as part of our ongoing business operations, including risks from foreign currency exchange rates, interest rate risks and concentration of procurement suppliers that could adversely affect our consolidated balance sheets, net (loss) income and cash flow.

We manage these risks through regular operating and financing activities and, at certain times, derivative financial instruments.

Foreign Currency Exchange Rate Risk

Due to the global nature of our operations, we are exposed to foreign currency exchange rate fluctuations. We maintain a foreign currency exchange rate risk management strategy that utilizes derivatives to reduce our exposure to unanticipated fluctuations in forecast revenue and costs and fair values of debt, inter-company debt and accounts receivables caused by changes in foreign currency exchange rates.

We mitigate our credit risk relating to counter-parties of our derivatives through a variety of techniques, including transacting with multiple, high-quality financial institutions, thereby limiting our exposure to individual counter-parties and by entering into International Swaps and Derivatives Association, Inc. ("ISDA") Master Agreements, which include provisions for a legally enforceable master netting agreement, with almost all of our derivative counter-parties. The terms of the ISDA agreements may also include credit support requirements, cross default provisions, termination events, or set-off provisions. Legally enforceable master netting agreements reduce credit risk by providing protection in bankruptcy in certain circumstances and generally permitting the closeout and netting of transactions with the same counter-party upon the occurrence of certain events.

Interest Rate Risk

We are subject to interest rate risk on our investments and debt. We manage a portion of our interest rate risk with contracts that swap floating-rate interest payments for fixed rate interest payments. If interest rates were to increase or decrease by 0.5%, the effects on our consolidated statement of (loss) income would not be material.

Concentration of Credit Risk

Our trade accounts receivable represent potential concentrations of credit risk. This risk is limited due to the large number of customers and their dispersion across a number of geographic areas, as well as our efforts to control our exposure to credit risk by monitoring our receivables and the use of credit approvals and credit limits. In addition, we have historically had strong collections and minimal write-offs. While we believe that our reserves for credit losses are adequate, essentially all of our trade receivables are concentrated in the hospital and healthcare sectors worldwide, and accordingly, we are exposed to their respective business, economic and country-specific variables. Although we do not currently foresee a concentrated credit risk associated with these receivables, repayment is dependent on the financial stability of these industry sectors and the respective countries' national economies and healthcare systems.

Factors Affecting Future Operating Results and Share Price

The factors affecting our future operating results and share prices are disclosed in "Item 1A. Risk Factors" included in this Annual Report on Form 10-K.

Item 7A Quantitative and Qualitative Disclosures about Market Risk

Information required under 7A. has been incorporated into "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations - Market Risk."

Item 8 Financial Statements and Supplementary Data

The information required by this Item is incorporated by reference to the consolidated financial statements beginning on page F-1.

Item 9 Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A Controls and Procedures

Disclosure Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures

We maintain a system of disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act, that are designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. This information is also accumulated and communicated to management, including our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO"), as appropriate, to allow timely decisions regarding required disclosure. Our management, under the supervision and with the participation of our CEO and CFO, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, our CEO and CFO concluded that our disclosure controls and procedures were effective as of December 31, 2017.

(b) Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2017 using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control - Integrated Framework (2013). Management's assessment included an evaluation of the design and testing of the operational effectiveness of our internal control over financial reporting. Based on that evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2017.

The effectiveness of our internal control over financial reporting as of December 31, 2017 has been audited by PricewaterhouseCoopers S.p.A., an independent registered public accounting firm. Their report, dated February 28, 2018, is included in "Item 15. Exhibits, Financial Statement Schedules" in this Annual Report on Form 10-K.

(c) Changes in Internal Control Over Financial Reporting

We deployed a new enterprise resource planning (ERP) software system, SAP, to our U.S. locations during the year ended December 31, 2017. In conjunction with the implementation of SAP, we reorganized certain U.S. legal entities were to align with our strategic and operational focus. Our internal controls have been updated to reflect these changes. There have been no other changes in our internal control over financial reporting (as defined in Rules 13a-15(f) under the Exchange Act) during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B Other Information

None.

PART III

Item 10 Directors, Executive Officers and Corporate Governance

Pursuant to general instruction G to Form 10-K, we incorporate by reference into this item the information to be disclosed in our definitive proxy statement for our 2018 Annual Meeting of Stockholders.

Item 11 Executive Compensation

Pursuant to general instruction G to Form 10-K, we incorporate by reference into this Item the information to be disclosed in our definitive proxy statement for our 2018 Annual Meeting of Stockholders.

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

Pursuant to general instruction G to Form 10-K, we incorporate by reference into this Item the information to be disclosed in our definitive proxy statement for our 2018 Annual Meeting of Stockholders.

Item 13 Certain Relationships and Related Transactions, and Director Independence

Pursuant to general instruction G to Form 10-K, we incorporate by reference into this Item the information to be disclosed in our definitive proxy statement for our 2018 Annual Meeting of Stockholders.

Item 14 Principal Accounting Fees and Services

Pursuant to general instruction G to Form 10-K, we incorporate by reference into this Item the information to be disclosed in our definitive proxy statement for our 2018 Annual Meeting of Stockholders.

PART IV

Item 15 Exhibits, Financial Statement Schedules

(1) Financial Statements

The Consolidated Financial Statements of LivaNova PLC and its subsidiaries and the Report of Independent Registered Public Accounting Firms are included in this Annual Report on Form 10-K beginning on page F-1:

Description	Page No.
Reports of Independent Registered Public Accounting Firms	F-2
Consolidated Statements of Income (Loss)	F-5
Consolidated Statements of Comprehensive Income (Loss)	F-6
Consolidated Balance Sheets	F-7
Consolidated Statements of Stockholders' Equity	F-8
Consolidated Statements of Cash Flows	F-9
Notes to Consolidated Financial Statements	F-11

(2) Financial Statement Schedules

All schedules required by Regulation S-X have been omitted as not applicable or not required, or the information required has been included in the notes to the consolidated financial statements.

(3) Index to Exhibits

The exhibits marked with the asterisk symbol (*) are filed or furnished (in the case of Exhibit 32.1) with this Form 10-K. The exhibits marked with the cross symbol (†) are management contracts or compensatory plans or arrangements filed pursuant to Item 601(b)(10)(iii) of Regulation S-K.

Exhibit Number	Document Description	Report or Registration Statement	SEC File or Registration Number	Exhibit Reference
2.1	Transaction Agreement, dated March 23, 2015, by and among LivaNova PLC (f/k/a Sand Holdco Limited), Cyberonics, Inc., Sorin S.p.A. and Cypher Merger Sub, Inc.	LivaNova PLC Registration Statement on Form S-4, filed on April 20, 2015, as amended	333-203510	Annex A-1
2.2	Letter of Intent, dated as of November 20, 2017, by and among LivaNova PLC, MicroPort Cardiac Rhythm B.V. and MicroPort Scientific Corporation (including the form of Stock and Asset Purchase Agreement attached as Exhibit A thereto)	LivaNova PLC Current Report on Form 8-K, filed on November 20, 2017	001-37599	2.1
3.2*	Amended Articles of Association of LivaNova PLC, effective as from 14 June 2017			
10.1	Service Agreement, dated September 8, 2015, between LivaNova PLC and Vivid Sehgal	LivaNova PLC Current Report on Form 8-K, filed on September 14, 2015	333-203510	10.1
10.2	Amendment and Restatement Agreement, dated October 2, 2015, by and among LivaNova PLC, Sorin S.p.A., Sorin CRM S.A.S., Sorin Group Italia S.r.l. and the European Investment Bank	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.1
10.3	Amended and Restated Finance Contract, dated October 19, 2015, by and among LivaNova PLC, Sorin CRM S.A.S., Sorin Group Italia S.r.l. and the European Investment Bank	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.2
10.4	Form of Deed of Indemnification (Directors), each effective October 19, 2015	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.3
10.5	Form of Deed of Indemnification (Officers), each effective October 19, 2015	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.4
10.6	LivaNova PLC 2015 Incentive Award Plan and related Sub-Plan for U.K. Participants, adopted on October 16, 2015	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.1
10.7	Form of Stock Appreciation Right Grant Notice and Stock Appreciation Right Agreement under the LivaNova PLC 2015 Incentive Award Sub-Plan (Non-U.S. Form)	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.2
10.8	Form of Stock Appreciation Right Grant Notice and Stock Appreciation Right Agreement under the LivaNova PLC 2015 Incentive Award Plan (U.S. Form)	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.3
10.10†	Director Appointment Letters for Non-Employee Directors, dated the dates indicated therein	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.5
10.11†	Form of Director Restricted Stock Unit Award Grant Notice and Director Restricted Stock Unit Award Agreement under the LivaNova PLC 2015 Incentive Award Plan (Non-Employee Directors)	LivaNova PLC Current Report on Form 8-K, filed on October 19, 2015	001-37599	10.6
10.20	Joint Venture Contract, dated January 9, 2014 between Sorin CRM Holdings SAS and Shanghai MicroPort Medical (Group) Co., Ltd.	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.20
10.21	Capital Increase and Accession Agreement in relation to MicroPort WeiBo Medical Devices (Shanghai) Co. Ltd., dated January 9, 2014, by and among Shanghai MicroPort Medical (Group) Co., Ltd., Sorin CRM Holdings SAS and MicroPort WeiBo Medical Devices (Shanghai) Co. Ltd.	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.21
10.22	Amendment Agreement, dated May 19, 2014, to the Joint Venture Contract and Articles of Association in respect of MicroPort Sorin CRM (Shanghai) Co., Ltd.	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.22
10.23	Amendment Agreement (2), dated 9 January 2014 to the Joint Venture Contract in respect of MicroPort Sorin CRM (Shanghai) Co., Ltd.	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.23

Exhibit Number	Document Description	Report or Registration Statement	SEC File or Registration Number	Exhibit Reference
10.24†	Employment Letter, dated January 12, 2016, to R. Jason Richey	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.24
10.25	Gruppo Sorin R&D Finance Contract, dated May 6, 2014, between the European Investment Bank and Sorin S.p.A., Sorin CRM S.A.S. and Sorin Group Italia S.r.l.	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.25
10.26†	Amendment to Restricted Stock Unit Agreement, dated February 17, 2016, between LivaNova PLC and André-Michel Ballester	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.26
10.27†	Cyberonics, Inc. 2009 Stock Plan, as amended,	Cyberonics, Inc. Proxy Statement on Schedule 14A, filed on August 2, 2012	000-19806	Appendix A
10.28†	Amended and Restated Cyberonics, Inc. New Employee Equity Inducement Plan, as amended	Cyberonics, Inc. Quarterly Report on Form 10-Q for the Cyberonics, Inc. fiscal quarter ended October 24, 2008	000-19806	10.3
10.42†	Employment Letter, dated November 14, 2003, to Brian Sheridan	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.42
10.43†	Employment Agreement, effective January 1, 2015 between David S. Wise and Cyberonics, Inc.	LivaNova Plc Annual Report on Form 10-K/T, filed on March 4, 2016.	001-37599	10.43
10.48†	Letter Agreement dated July 1, 2016 between Mr. Douglas Manko and Cyberonics Inc., a wholly owned subsidiary of LivaNova Plc	LivaNova Plc Quarterly Report on Form 10-Q, filed on November 2, 2016.	001-37599	10.48
10.50†	Service Agreement dated October 3, 2016 between Mr. Damien McDonald and LivaNova Plc	LivaNova Plc Current Report on Form 8-K, filed on August 1, 2016.	001-37599	10.1
10.51†	Side Letter effective October 3, 2016 between Mr. Damien McDonald and LivaNova Plc	LivaNova Plc Current Report on Form 8-K, filed on August 1, 2016.	001-37599	10.2
10.54	Form of Share Repurchase Contract approved by shareholders at the 2016 Annual Meeting of Shareholders	LivaNova Plc Proxy Statement on Schedule 14A, filed on May 16, 2016	001-37599	Appendix A
10.55	Form of Rule 10b5-1 Repurchase Plan approved by shareholders at the 2016 Annual Meeting of Shareholders	LivaNova Plc Proxy Statement on Schedule 14A, filed on May 16, 2016	001-37599	Appendix B
10.56	Board approval of Share Repurchase Programme on August 2, 2016	LivaNova Plc Current Report on Form 8-K, filed on August 2, 2016	001-37599	Form 8-K
10.57	$40m Revolving Facility Agreement between LivaNova Plc and Barclays Bank Plc	LivaNova Plc Quarterly Report on Form 10-Q, filed on November 2, 2016	001-37599	10.57
10.58†	Settlement Agreement between Andre-Michel Ballester and LivaNova Plc dated December 21, 2016	LivaNova Plc Annual Report on Form 10-K, filed on March 1, 2017.	001-37599	10.58
10.59†	Consultancy Agreement between Andre-Michel Ballester and LivaNova Plc dated December 26, 2016	LivaNova Plc Annual Report on Form 10-K, filed on March 1, 2017.	001-37599	10.59
10.60	Form of LivaNova Plc 2017 Service-Based Restricted Share Unit ("RSU") Agreement	LivaNova Plc Current Report on Form 8-K, filed on May 11, 2017	001-37599	10.1
10.61	Form of LivaNova Plc 2017 Performance-Based RSU Agreement	LivaNova Plc Current Report on Form 8-K, filed on May 11, 2017	001-37599	10.2
10.62†	CEO Employment Agreement effective January 1, 2017 between LivaNova Plc and Mr. Damien McDonald	LivaNova Plc Current Report on Form 8-K, filed on February 28, 2017	001-37599	10.2
10.63†	Side Letter dated January 1, 2017 between LivaNova Plc and Mr. Damien McDonald	LivaNova Plc Current Report on Form 8-K, filed on February 28, 2017	001-37599	10.3
10.64†	LivaNova Plc 2017 Short-Term Incentive Plan	LivaNova Plc Current Report on Form 8-K, filed on February 28, 2017	001-37599	10.1
10.65†	Termination Agreement dated April 3, 2017 between LivaNova Plc and Mr. Jacques Gutedel	LivaNova Plc Current Report on Form 8-K, filed on April 6, 2017	001-37599	10.1
10.66†	Description of Payment Under the 2016 Bonus Plan	LivaNova Plc Current Report on Form 8-K, filed on April 25, 2017	001-37599	Form 8-K

Exhibit Number	Document Description	Report or Registration Statement	SEC File or Registration Number	Exhibit Reference
10.67†	Mutual termination agreement of the employment contract and full settlement, effective February 8, 2017, between LivaNova PLC - Italian branch and Mr. Brian Sheridan	LivaNova Plc Quarterly Report on Form 10-Q, filed on May 3, 2017	001-37599	10.67
10.68†	Consultancy Agreement, effective February 8, 2017, between LivaNova Plc and Mr. Brian Sheridan	LivaNova Plc Quarterly Report on Form 10-Q, filed on May 3, 2017	001-37599	10.68
10.69†	Settlement Agreement effective May 31, 2017 between LivaNova PLC and Vivid Sehgal	LivaNova Plc Quarterly Report on Form 10-Q, filed on May 3, 2017	001-37599	10.69
10.70†	Service Agreement, by and between LivaNova Plc and Thad Huston, dated April 27, 2017	LivaNova Plc Current Report on Form 8-K, filed on May 16, 2017	001-37599	10.1
10.71†	Side Letter dated April 27, 2017 from LivaNova Plc to Thad A. Huston	LivaNova Plc Current Report on Form 8-K, filed on May 16, 2017	001-37599	10.2
10.72	LivaNova R&D Finance Contract between the European Investment Bank and LivaNova PLC and Sorin CRM S.A.S. and Sorin Group Italia S.r.l., effective 29 June 2017	LivaNova Plc Current Report on Form 8-K, filed on July 6, 2017	001-37599	10.1
10.73†	Keyna Skeffington service agreement effective May 24, 2017, between LivaNova PLC and Keyna Skeffington	LivaNova Plc Quarterly Report on Form 10-Q, filed on August 9, 2017	001-37599	10.6
10.74*†	LivaNova PLC Non-Employee Director Compensation Policy, adopted December 2017			
10.75	Form of Share Repurchase Contract approved by shareholders at the 2017 Annual Meeting of Shareholders	LivaNova Plc Proxy Statement on Schedule 14A, filed on May 16, 2017	001-37599	Appendix A
10.76	Form of Rule 10b5-1 Repurchase Plan approved by shareholders at the 2017 Annual Meeting of Shareholders	LivaNova Plc Proxy Statement on Schedule 14A, filed on May 16, 2017	001-37599	Appendix B
21.1*	List of Subsidiaries of LivaNova PLC			
23.1*	Consent of PricewaterhouseCoopers S.p.A.			
23.2*	Consent of KPMG LLP			
31.1*	Certification of the Chief Executive Officer of LivaNova PLC pursuant to Section 302 of the Sarbanes-Oxley Act of 2002			
31.2*	Certification of the Chief Financial Officer of LivaNova PLC pursuant to Section 302 of the Sarbanes-Oxley Act of 2002			
32.1*	Certification of the Chief Executive Officer and of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.			
101*	Interactive Data Files Pursuant to Rule 405 of Regulation S-T: (i) the Consolidated Statement of (Loss) Income for the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015 and the fiscal year ended April 24, 2015, (ii) the Consolidated Statement of Comprehensive Income for the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015, and the fiscal year ended April 24, 2015, (iii) the Consolidated Balance Sheets as of December 31, 2017 and December 31, 2016, (iv) the Consolidated Statement of Stockholders' Equity for the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015, and the fiscal year ended April 24, 2015, (v) the Consolidated Statement of Cash Flows for the years ended December 31, 2017 and December 31, 2016, the transitional period April 25, 2015 to December 31, 2015, and the fiscal year ended April 24, 2015, and (vi) the Notes to the Consolidated Financial Statements.			

Signatures

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

LIVANOVA PLC

By: /s/ DAMIEN MCDONALD
Damien McDonald
Chief Executive Officer
(Principal Executive Officer)

LIVANOVA PLC

By: /s/ THAD HUSTON
Thad Huston
Chief Financial Officer
(Principal Financial Officer)

Date: February 28, 2018

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

Signature	Title	Date
/s/ DANIEL J. MOORE Daniel J. Moore	Chairman of the Board of Directors	February 28, 2018
/s/ DAMIEN MCDONALD Damien McDonald	Director, Chief Executive Officer *(Principal Executive Officer)*	February 28, 2018
/s/ THAD HUSTON Thad Huston	Chief Financial Officer *(Principal Financial Officer)*	February 28, 2018
/s/ DOUG MANKO Doug Manko	Chief Accounting Officer *(Principal Accounting Officer)*	February 28, 2018
/s/ FRANCESCO BIANCHI Francesco Bianchi	Director	February 28, 2018
/s/ STEFANO GIANOTTI Stefano Gianotti	Director	February 28, 2018
/s/ HUGH M. MORRISON Hugh M. Morrison	Director	February 28, 2018
/s/ ALFRED J. NOVAK Alfred J. Novak	Director	February 28, 2018
/s/ SHARON O'KANE Sharon O'Kane, Ph.D.	Director	February 28, 2018
/s/ ARTHUR ROSENTHAL Arthur Rosenthal, Ph.D.	Director	February 28, 2018
/s/ ANDREA L. SAIA Andrea L. Saia	Director	February 28, 2018

CONSOLIDATED FINANCIAL STATEMENTS

For the years ended December 31, 2017 and December 31, 2016, the transitional period ended December 31, 2015, and the fiscal year ended April 24, 2015

TOGETHER WITH REPORTS OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRMS

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors of LivaNova PLC:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of LivaNova PLC and its subsidiaries (the "Company") as of December 31, 2017 and 2016, and the related consolidated statements of income (loss), comprehensive income (loss), stockholders' equity and of cash flows for the years ended December 31, 2017 and December 31, 2016 and the transitional period from April 25, 2015 to December 31, 2015, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (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 December 31, 2017 and 2016, and the results of its operations and its cash flows for the years ended December 31, 2017 and December 31, 2016 and the transitional period from April 25, 2015 to December 31, 2015 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 December 31, 2017, based on criteria established in *Internal Control -Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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. 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.

/s/ PricewaterhouseCoopers SpA

Milan, Italy

February 28, 2018

PricewaterhouseCoopers SpA has served as the Company's auditor since 2015.

Report of Independent Registered Public Accounting Firm

Cyberonics, Inc.:

We have audited the accompanying consolidated statements of income, comprehensive income, stockholders' equity, and cash flows of Cyberonics, Inc and subsidiaries for the fifty-two weeks ended April 24, 2015. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the auditing standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the results of their operations of Cyberonics, Inc. and their cash flows for the fifty-two weeks ended April 24, 2015, in conformity with U.S. generally accepted accounting principles.

/s/ KPMG LLP

Houston, Texas

June 15, 2015

LIVANOVA PLC AND SUBSIDIARIES'

Consolidated Statements of (Loss) Income

(In thousands except per share amounts)	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Net sales	$ 1,012,277	$ 964,858	$ 363,237	$ 291,558
Cost of sales	353,403	367,818	113,404	27,311
Product remediation	7,254	37,534	—	—
Gross profit	651,620	559,506	249,833	264,247
Operating expenses:				
Selling, general and administrative	380,560	356,807	147,025	123,619
Research and development	109,662	82,467	41,916	42,245
Merger and integration expenses	15,528	20,377	55,776	8,692
Restructuring expenses	17,056	37,377	10,494	—
Amortization of intangibles	33,144	31,035	7,030	1,039
Total operating expenses	555,950	528,063	262,241	175,595
Operating income (loss) from continuing operations	95,670	31,443	(12,408)	88,652
Interest income	1,318	1,698	392	184
Interest expense	(7,797)	(10,616)	(1,509)	(21)
Gain on acquisition of Caisson Interventional, LLC	39,428	—	—	—
Impairment of cost-method investments	(8,565)	—	(5,062)	—
Foreign exchange and other gains (losses)	1,084	3,141	(7,411)	479
Income (loss) from continuing operations before tax	121,138	25,666	(25,998)	89,294
Income tax expense (benefit)	49,954	5,113	(13,501)	31,446
Losses from equity method investments	(16,719)	(18,679)	(2,223)	—
Net income (loss) from continuing operations	54,465	1,874	(14,720)	57,848
Discontinued Operations:				
Loss from discontinued operations, net of tax	(1,271)	(64,663)	(14,893)	—
Impairment of discontinued operations, net of tax	(78,283)	—	—	—
Net loss from discontinued operations	(79,554)	(64,663)	(14,893)	—
NET (LOSS) INCOME	**$ (25,089)**	**$ (62,789)**	**$ (29,613)**	**$ 57,848**
Basic income (loss) per common share:				
Continuing operations	$ 1.13	$ 0.04	$ (0.45)	$ 2.19
Discontinued operations	(1.65)	(1.33)	(0.45)	—
	$ (0.52)	**$ (1.29)**	**$ (0.90)**	**$ 2.19**
Diluted income (loss) per common share:				
Continuing operations	$ 1.12	$ 0.04	$ (0.45)	$ 2.17
Discontinued operations	(1.64)	(1.32)	(0.45)	—
	$ (0.52)	**$ (1.28)**	**$ (0.90)**	**$ 2.17**
Shares used in computing basic income (loss) per share	48,157	48,860	32,741	26,391
Shares used in computing diluted income (loss) per share	48,501	49,014	32,741	26,626

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES'

Consolidated Statements of Comprehensive Income (Loss)

(In thousands)	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Net (loss) income	$ (25,089)	$ (62,789)	$ (29,613)	$ 57,848
Other comprehensive (loss) income:				
Net change in unrealized gain on derivatives	(6,413)	3,930	1,274	—
Tax effect	1,875	(1,199)	(386)	—
Net of tax	(4,538)	2,731	888	—
Foreign currency translation adjustment, net of tax	118,338	(16,990)	(51,715)	(3,856)
Total other comprehensive income (loss)	113,800	(14,259)	(50,827)	(3,856)
TOTAL COMPREHENSIVE INCOME (LOSS)	**$ 88,711**	**$ (77,048)**	**$ (80,440)**	**$ 53,992**

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES'

Consolidated Balance Sheets

(In thousands, except share data)	December 31, 2017	December 31, 2016
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 93,615	$ 39,789
Accounts receivable, net	282,145	213,256
Inventories	144,470	133,017
Prepaid and refundable taxes	46,274	50,577
Assets held for sale	13,628	4,477
Assets of discontinued operations	250,689	319,922
Prepaid expenses and other current assets	39,037	51,652
Total Current Assets	869,858	812,690
Property, plant and equipment, net	192,359	203,708
Goodwill	784,242	691,712
Intangible assets, net	535,397	441,608
Investments	34,492	56,226
Deferred tax assets, net	11,559	6,017
Other assets	75,984	130,670
TOTAL ASSETS	**$ 2,503,891**	**$ 2,342,631**
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Current debt obligations	$ 84,034	$ 47,650
Accounts payable	85,915	71,934
Accrued liabilities and other	78,942	71,047
Taxes payable	12,826	18,381
Accrued employee compensation and related benefits	66,224	57,635
Liabilities of discontinued operations	78,075	83,243
Total Current Liabilities	406,016	349,890
Long-term debt obligations	61,958	75,215
Deferred income taxes liability	123,342	152,532
Long-term employee compensation and related benefits	28,177	23,014
Other long-term liabilities	69,084	35,071
Total Liabilities	688,577	635,722
Commitments and contingencies (Note 12)	—	—
Stockholders' Equity:		
Ordinary Shares, £1.00 par value: unlimited shares authorized; 48,290,276 shares issued and 48,287,346 outstanding at December 31, 2017; 48,156,690 shares issued and 48,028,413 outstanding at December 31, 2016	74,750	74,578
Additional paid-in capital	1,735,048	1,719,893
Accumulated other comprehensive income (loss)	45,313	(68,487)
Accumulated loss	(39,664)	(14,575)
Treasury stock at cost, 2,930 shares at December 31, 2017; 128,277 shares at December 31, 2016	(133)	(4,500)
Total Stockholders' Equity	1,815,314	1,706,909
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	**$ 2,503,891**	**$ 2,342,631**

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES'

Consolidated Statement of Stockholders Equity

(In thousands)	Ordinary Stock Shares	Ordinary Stock Amount	Additional Paid-In Capital	Treasury Stock	Accumulated Other Comprehensive (Loss)	Accumulated Earnings (Loss)	Total Stockholders' Equity
Balance at December 31, 2015	48,868	$ 75,444	$ 1,742,032	$ —	$ (54,228)	$ 48,214	$ 1,811,462
Stock-based compensation plans	282	391	26,591	(4,500)	—	—	22,482
Share repurchases	(993)	(1,257)	(48,730)	—	—	—	(49,987)
Net loss	—	—	—	—	—	(62,789)	(62,789)
Other comprehensive loss	—	—	—	—	(14,259)	—	(14,259)
Balance at December 31, 2016	48,157	74,578	1,719,893	(4,500)	(68,487)	(14,575)	1,706,909
Stock-based compensation plans	133	172	15,155	4,367	—	—	19,694
Net loss	—	—	—	—	—	(25,089)	(25,089)
Other comprehensive income	—	—	—	—	113,800	—	113,800
BALANCE AT DECEMBER 31, 2017	**48,290**	**$ 74,750**	**$ 1,735,048**	**$ (133)**	**$ 45,313**	**$ (39,664)**	**$ 1,815,314**

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES'

Consolidated Statements of Cash Flows

(In thousands)	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Operating Activities:				
Net (loss) income	$ (25,089)	$ (62,789)	$ (29,613)	$ 57,848
Non-cash items included in net (loss) income:				
Depreciation	37,054	39,852	10,766	5,768
Amortization	45,881	45,511	9,734	1,039
Stock-based compensation	19,062	19,569	31,030	11,940
Deferred income tax (benefit) expense	(9,272)	(26,711)	(39,766)	9,400
Losses from equity method investments	21,606	22,612	3,308	—
Gain on acquisition of Caisson Interventional, LLC	(39,428)	—	—	—
Impairment of discontinued operations	93,574	—	—	—
Impairment of goodwill	—	18,348	—	—
Impairment of cost-method investments	8,565	—	5,127	—
Impairment of property, plant and equipment	5,979	5,971	—	—
Amortization of income taxes payable on inter-company transfers of property	31,784	25,952	12,719	—
Other	5,240	10,217	10,492	14
Changes in operating assets and liabilities:				
Accounts receivable, net	(48,934)	(16,448)	(15,850)	(2,654)
Inventories	7,187	26,703	36,326	(7,113)
Other current and non-current assets	(6,180)	(32,686)	(10,390)	(2,112)
Restructuring reserve	(14,557)	12,405	(4,720)	—
Accounts payable and accrued current and non-current liabilities	(41,133)	1,645	(28,451)	5,546
Net cash provided by (used in) operating activities	**91,339**	**90,151**	**(9,288)**	**79,676**
Investing Activities:				
Purchases of property, plant, equipment and other	(34,107)	(38,362)	(17,286)	(6,687)
Acquisition of Caisson Interventional, LLC, net of cash acquired	(14,194)	—	—	—
Proceeds from sale of cost-method investment	3,192	—	—	—
Proceeds from asset sales	5,935	1,145	948	—
Purchases of cost and equity method investments	(6,255)	(8,026)	—	(1,182)
Loans to cost and equity method investees	(7,426)	(6,270)	—	—
Purchases of short-term investments	—	(7,054)	(13,990)	(31,985)
Maturities of short-term investments	—	14,051	34,013	30,089
Cash obtained in the Merger	—	—	12,497	—
Net cash (used in) provided by investing activities	**(52,855)**	**(44,516)**	**16,182**	**(9,765)**

LIVANOVA PLC AND SUBSIDIARIES'

Consolidated Statements of Cash Flows (continued)

(In thousands)	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Financing Activities:				
Change in short-term borrowing, net	12,396	(33,708)	11,112	–
Proceeds from short-term borrowing (maturities greater than 90 days)	20,000	–	–	–
Proceeds from long-term debt obligations	2,048	7,231	–	–
Repayment of long-term debt obligations	(22,755)	(21,109)	(31,968)	–
Proceeds from exercise of stock options	4,973	8,332	6,480	3,184
Repayment of trade receivable advances	–	(23,779)	–	–
Share repurchases	–	(54,487)	(7,350)	(55,015)
Other	(5,368)	(519)	3,599	3,575
Net cash provided by (used) in financing activities	**11,294**	**(118,039)**	**(18,127)**	**(48,256)**
Effect of exchange rate changes on cash and cash equivalents	4,048	(420)	(341)	(767)
Net increase (decrease) in cash and cash equivalents	**53,826**	**(72,824)**	**(11,574)**	**20,888**
Cash and cash equivalents at beginning of period	39,789	112,613	124,187	103,299
CASH AND CASH EQUIVALENTS AT END OF PERIOD	**$ 93,615**	**$ 39,789**	**$ 112,613**	**$ 124,187**
Supplementary Disclosures of Cash Flow Information:				
Cash paid for interest	$ 7,510	$ 7,371	$ 515	$ 1
Cash paid for income taxes	38,974	47,808	22,738	15,577
Supplementary Disclosure of Non-Cash Operating Transactions:				
Acquisition financed by ordinary shares of LivaNova	–	–	1,589,083	–

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES'

Notes to the Consolidated Financial Statements

(In thousands, except share and per share amounts)

Note 1 Nature of Operations

Background

LivaNova PLC (collectively with its subsidiaries, the "Company", "LivaNova", "we" or "our") was organized under the laws of England and Wales on February 20, 2015 for the purpose of facilitating the business combination (the "Merger") of Cyberonics, Inc., a Delaware corporation ("Cyberonics") and Sorin S.p.A., a joint stock company organized under the laws of Italy ("Sorin"). As a result of the business combination, LivaNova, headquartered in London, became the holding company of the combined businesses of Cyberonics and Sorin. This business combination became effective on October 19, 2015, at which time LivaNova's ordinary shares were listed for trading on the NASDAQ Global Market ("NASDAQ") and on the London Stock Exchange (the "LSE") as a standard listing under the trading symbol "LIVN." Upon the consummation of the Mergers, the historical financial statements of Cyberonics became the Company's historical financial statements. Accordingly, the historical financial statements of Cyberonics are included in the comparative prior periods. For further information regarding the acquisition, refer to "Item 1. Business" and "Note 3. Business Combinations" to the consolidated financial statements included in this Annual Report on Form 10-K. On February 23, 2017, we announced our voluntary cancellation of our standard listing of our shares with the London Stock Exchange due to the low trading volume of our shares and trading ceased at the close of business on April 4, 2017. We continue to serve our shareholders through our listing on the NASDAQ Stock Market.

Description of the Business

LivaNova is a global medical device company focused on the development and delivery of important therapeutic solutions for the benefit of patients, healthcare professionals and healthcare systems throughout the world. Working closely with medical professionals in the fields of Cardiac Surgery and Neuromodulation, we design, develop, manufacture and sell innovative therapeutic solutions that are consistent with our mission to improve our patients' quality of life, increase the skills and capabilities of healthcare professionals and minimize healthcare costs.

On November 20, 2017, we entered into a Letter of Intent ("LOI") to sell our Cardiac Rhythm Management Business Franchise ("CRM") to MicroPort Scientific Corporation for $190 million in cash. We expect to enter into the definitive acquisition agreement contemplated by the LOI following completion of the notification and consultation process with CRM's employee works councils as required by local laws. Completion of the transaction is subject to entry into the definitive acquisition agreement, receipt of relevant regulatory approvals, including fulfilling the requirements of the Hong Kong Stock Exchange's Major Transaction requirements, and other customary closing conditions. We expect the transaction to close in the second quarter of 2018. Accordingly, the results of operations of the CRM Business Franchise are reflected as discontinued operations for all periods presented in this Annual Report on Form 10-K and related assets and liabilities are presented as held for sale.

Business Franchises

LivaNova is comprised of two principal Business Franchises, which are also our reportable segments: Cardiac Surgery and Neuromodulation, corresponding to our primary therapeutic areas. Other corporate activities include corporate business development and New Ventures, focused on new growth platforms and identification of other opportunities for expansion.

Note 2 Basis of Presentation, Use of Accounting Estimates and Significant Accounting Policies

The Mergers

On October 19, 2015, as further described herein, LivaNova became the holding company of the combined businesses of Cyberonics and Sorin. Based on the structure of the Mergers, management determined that Cyberonics was considered to be the accounting acquirer and predecessor for accounting purposes.

Sale of our Cardiac Rhythm Management Business Franchise

On November 20, 2017, we entered into a letter of intent ("LOI") to sell the CRM Business Franchise to MicroPort Scientific Corporation for $190.0 million in cash. We expect to enter into the definitive acquisition agreement contemplated by the LOI in the second quarter of 2018. As a result of the commitment

to undertake the proposed transaction, we recognized an impairment of $78.3 million, net of a $15.3 million tax benefit, related to the intangible and tangible assets of the CRM Business Franchise. The impairment is included in impairment of discontinued operations, net of tax within the consolidated statements of (loss) income. We concluded that the sale of the CRM Business Franchise represents a strategic shift in our business that will have a major effect on future operations and financial results and therefore qualifies as a discontinued operation under U.S. GAAP. The results of operations of the CRM Business Franchise are reflected as discontinued operations for all periods presented in the Annual Report on Form 10-K and the assets and liabilities of the CRM Business Franchise are classified as held for sale and presented as assets and liabilities of discontinued operations on the consolidated balance sheets dated December 31, 2017 and December 31, 2016.

Basis of Presentation

The accompanying consolidated financial statements of LivaNova at December 31, 2017 have been prepared in accordance with generally accepted accounting principles in the United States ("U.S." and such principles, "U.S. GAAP") and the instructions to Form 10-K and Article 3 and Article 5 of Regulation S-X.

Reporting Periods

In this Annual Report on Form 10-K, LivaNova, as the successor company to Cyberonics, is reporting the results for:

- LivaNova and its consolidated subsidiaries for the years ended December 31, 2017 and December 31, 2016.
- A transitional period, April 25, 2015 to December 31, 2015, filed on Form 10-K/T. This transitional report is the result of the change from Cyberonics' fiscal year ending the last Friday in April before the Mergers to a calendar year ending December 31st after the Mergers. The transitional period included the business activities of Cyberonics and its consolidated subsidiaries for the period April 25, 2015 to October 18, 2015, and the consolidated results of the combined businesses of LivaNova (Cyberonics and Sorin) for the period October 19, 2015 through December 31, 2015.
- LivaNova is also reporting the historical results of Cyberonics and its consolidated subsidiaries, our predecessor, for the fiscal year ended April 24, 2015.

Consolidation

The accompanying consolidated financial statements for LivaNova include LivaNova's wholly owned subsidiaries and the LivaNova PLC Employee Benefit Trust ("the Trust"). The accompanying consolidated financial statements for Cyberonics include Cyberonics' wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated.

Use of Estimates

The preparation of our consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in such financial statements and accompanying notes. These estimates are based on management's best knowledge of current events and actions we may undertake in the future. Estimates are used in accounting for, among other items, valuation and amortization of intangible assets, goodwill, measurement of deferred tax assets and liabilities, uncertain income tax positions, stock-based compensation, obsolete and slow-moving inventories, models, such as an impairment analysis, and in general, allocations to provisions and the fair value of assets and liabilities recorded in a business combination. Actual results could differ materially from those estimates.

Reclassifications

The following reclassifications have been made to conform the prior year consolidated statements of (loss) income, consolidated balance sheets and consolidated statements of cash flows with current year presentation:

- Having entered into a letter of intent ("LOI") to sell our CRM Business Franchise to MicroPort Scientific Corporation on November 20, 2017, we have classified CRM's assets and liabilities as held for sale in the consolidated balance sheets as assets and liabilities of discontinued operations and CRM's operating results in the consolidated statement of net (loss) income into discontinued operations for all prior periods presented. In addition, to conform the consolidated statement of net (loss) income and "Note 18. Geographic and Segment Information" for the year ended December 31, 2016 to the current period presentation, we reclassified operating expense of $6.0 million from the CRM segment to the Neuromodulation segment. In addition, we reclassified operating expense of $1.0 million from the CRM segment to the Neuromodulation segment for the transitional period ended December 31, 2015.
- To conform the consolidated balance sheet as of December 31, 2016 to the current period presentation, we reclassified $4.5 million of assets held for sale, related to our plan to exit the Costa Rica manufacturing operation, to a separate line item in the consolidated balance sheet from 'Prepaid expenses and other current assets'. We received $4.9 million in proceeds from the sale of our Costa Rica manufacturing operation during the year ended December 31, 2017.
- For the year ended December 31, 2017, Loans to Equity and Cost Method Investees of $7.4 million was presented as an Investing Activities and to conform the presentation for the prior year ended December 31, 2016, Loans to Equity and Cost Method Investees of $6.3 million was reclassified to Investing Activities from Financing Activities. For the year ended December 31, 2017 'Intangible asset purchases' were reported as 'Purchases of property, plant and equipment and other' and we conformed the presentation for the prior year and the transitional period ended December 31, 2016 and December 31, 2015, respectively. Certain financing activities were reported as Other for the year ended December 31, 2017 and we conformed the presentation for the prior year and the transitional period ended December 31, 2016 and December 31, 2015, respectively.

Merger, Integration and Restructuring Charges

As a result of the Mergers and acquisitions, we incurred merger, integration and restructuring charges and reported them separately as operating expenses in the consolidated statements of (loss) income.

- Merger expenses consisted of expenses directly related to the Mergers, such as professional fees for legal services, accounting services, due diligence, a fairness opinion and the preparation of registration and regulatory filings in the United States and Europe, as well as investment banking fees.
- Integration expenses consisted of consultancy fees with regard to: our systems integration, organization structure integration, finance, synergy and tax planning, the transition to U.S. GAAP for Sorin, our London Stock Exchange listing and certain re-branding efforts.
- After the consummation of the Mergers between Cyberonics and Sorin in October 2015, we initiated several restructuring plans (the "Restructuring Plans") to combine our business operations. We identified costs incurred and liabilities assumed for the Restructuring Plans. The Restructuring Plans are intended to leverage economies of scale, eliminate duplicate corporate expenses, streamline distributions and logistics and office functions in order to reduce overall costs.

Cash and Cash Equivalents

We consider all highly liquid investments with an original maturity of three months or less, consisting of demand deposit accounts and money market mutual funds, to be cash equivalents and are carried in the balance sheet at cost, which approximated their fair value.

Accounts Receivable

Our accounts receivable consisted of trade receivables from direct customers and distributors. We maintain an allowance for doubtful accounts for potential credit losses based on our estimates of the ability of customers to make required payments, historical credit experience, existing economic conditions and expected future trends. We write off uncollectible accounts against the allowance when all reasonable collection efforts have been exhausted.

Inventories

We state our inventories at the lower of cost, using the first-in first-out ("FIFO") method, or market. Our calculation of cost includes the acquisition cost of raw materials and components, direct labor and overhead. We reduce the carrying value of inventories for those items that are potentially excess, obsolete or slow moving based on changes in customer demand, technology developments or other economic factors.

Property, Plant and Equipment ("PP&E")

Assets held and used

PP&E is carried at cost, less accumulated depreciation. Maintenance, repairs and minor replacements are charged to expense as incurred, while significant renewals and improvements are capitalized. We compute depreciation using the straight-line method over estimated useful lives. Leasehold improvements are depreciated over the shorter of the following terms: the useful life of the asset or a term that includes required lease periods and renewals that are deemed to be reasonably assured at the date the leasehold improvements are purchased. Capital improvements to the building are added as building components and depreciated over the useful life of the improvement or the building, whichever is less.

Assets held for sale

We classify long-lived assets as held for sale in the period in which we commit to a plan to sell the asset, the asset is available for immediate sale, the asset is being actively marketed for sale at a price that is reasonable in relation to its current fair value and the sale of the asset is probable within the next twelve months and when actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn. A long-lived asset classified as held for sale is measured at the lower of its carrying amount or fair value less cost to sell and depreciation is discontinued. We recognize a loss for any excess of carrying value over the fair value less cost to sell.

Business Combinations and Goodwill

We allocate the amounts we pay for an acquisition to the assets we acquire and liabilities we assume based on their fair values at the date of acquisition, including property, plant and equipment, inventories, accounts receivable, long-term debt, and identifiable intangible assets which either arise from a contractual or legal right or are separable from goodwill. We base the fair value of identifiable intangible assets acquired in a business combination, including in-process research and development, on valuations that use information and assumptions provided by management, which consider management's best estimates of inputs and assumptions that a market participant would use. We allocate any excess purchase price over the fair value of the net tangible and identifiable intangible assets acquired to goodwill. Transaction costs associated with these acquisitions are expensed as incurred and are reported as operating expenses. We recognize adjustments to the provisional amounts identified during the measurement period with a corresponding adjustment to goodwill in the reporting period in which the adjustment amounts are determined. The effect on earnings of changes in depreciation, amortization or other income effects, if any, as a result of the

change to the provisional amounts are recorded in the same period's financial statements, calculated as if the accounting had been completed at the acquisition date.

Intangible Assets, Other than Goodwill

Intangible assets shown on the consolidated balance sheets consist of finite-lived and indefinite-lived assets. Developed technology rights consist primarily of existing technology and technical capabilities acquired from Sorin in the Mergers that were recorded at their respective fair values as of the acquisition date which includes patents, related know-how and licensed patent rights that represent assets expected to generate future economic benefits. Trademarks and trade names include the Sorin trade name acquired as part of the Mergers. In-process R&D was recognized as part of the acquisition of Caisson Interventional, LLC ("Caisson"). Customer relationships consist of relationships with hospitals and cardiac surgeons in the countries where we operate. Other intangible assets consist of favorable leases acquired from Sorin in the Mergers. We amortize our finite-lived intangible assets over their useful lives using the straight-line method.

Amortization expense is disclosed separately in the consolidated statement of net (loss) income. We evaluate our intangible assets each reporting period to determine whether events and circumstances indicate either a different useful life or impairment. If we change our estimate of the useful life of an asset, we amortize the carrying amount over the revised remaining useful life.

Impairments of Long-Lived Assets, Investments and Goodwill

PP&E, intangible assets and investments

We evaluate the carrying value of our long-lived assets and investments when events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. Such changes in circumstance may include, among other items, (i) an expectation of a sale or disposal of a long-lived asset or asset group, (ii) adverse changes in market or competitive conditions, (iii) an adverse change in legal factors or business climate in the markets in which we operate and (iv) operating or cash flow losses.

For PP&E and intangible assets used in our operations, recoverability generally is determined by comparing the carrying value of an asset, or group of assets to their expected undiscounted future cash flows. If the carrying value of an asset (asset group) is not recoverable, the amount of impairment loss is measured as the difference between the carrying value of the asset (asset group) and its estimated fair value. The asset grouping as well as the determination of expected undiscounted cash flow amounts requires significant judgments, estimates, and assumptions, including cash flows generated upon disposition. We generally measure fair value by considering sale prices for similar assets. Assets to be disposed of are carried at the lower of their financial statement carrying amount or fair value less costs to sell.

Goodwill

We conduct impairment testing of our goodwill on October 1st each year. We test goodwill for impairment between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount.

Testing is performed at the reporting unit level, which is defined as an operating segment or a component of an operating segment that constitutes a business for which financial information is available and is regularly viewed by management. Neuromodulation and Cardiac Surgery are deemed to be our reporting units for purposes of goodwill impairment testing.

If we determine that goodwill is more-likely-than-not impaired we perform the first step of a two-step goodwill impairment test. We first identify potential impairment by comparing the fair value of the reporting unit to its carrying amount, including goodwill. Fair value refers to the price that would be received if we were to sell the unit as a whole in an orderly transaction. If the carrying amount of our reporting unit is greater than zero and its fair value exceeds its carrying amount, goodwill of the reporting unit is considered not impaired and the second step of the impairment test is unnecessary. If the carrying value of the reporting unit exceeds its fair value, we perform step 2 of the goodwill impairment test and determine if the carrying amount of the reporting unit exceeds the implied fair value of the goodwill. An impairment loss is recognized, when the carrying amount of the reporting unit's net assets exceeds the implied fair value of the reporting unit, up to and including the carrying amount of the goodwill.

If the aggregate fair value of our reporting units exceeds our market capitalization, we evaluate the reasonableness of the implied control premium which includes a comparison to implied control premiums from recent market transactions within our industry or other relevant benchmark data.

Goodwill impairment evaluations are highly subjective. In most instances, they involve expectations of future cash flows that reflect our judgments and assumptions regarding future industry conditions and operations. The estimates, judgments and assumptions used in the application of our goodwill impairment policies reflect both historical experience and an assessment of current operational, industry, market, economic and political environments. The use of different estimates, judgments, assumptions and expectations regarding future industry and market conditions and operations would likely result in materially different asset carrying values and operating results.

Quantitative factors used to determine the fair value of the reporting units reflect our best estimates, and we believe they are reasonable. Future declines in the reporting unit's operating performance or our anticipated business outlook may reduce the estimated fair value of our reporting unit and result in additional impairments. Factors that could have a negative impact on the fair value of the reporting units include, but are not limited to:

- Decreases in revenue as a result of the inability of our sales force to effectively market and promote our products;

- Increased competition, patent expirations or new technologies or treatments;
- Declines in anticipated growth rates;
- The outcome of litigation, legal proceedings, investigations or other claims resulting in significant cash outflows;
- Increases in the market-participant risk-adjusted Weighted Average Cost of Capital ("WACC").

Derivatives and Risk Management

U.S. GAAP requires companies to recognize all derivatives as assets and liabilities on the balance sheet and to measure the instruments at fair value through earnings unless the derivative qualifies for hedge accounting. If the derivative qualifies for hedge accounting, depending on the nature of the hedge and hedge effectiveness, changes in the fair value of the derivative will either be recognized immediately in earnings or recorded in other comprehensive income (loss) until the hedged item is recognized in earnings upon settlement/termination. The changes in the fair value of the derivative are intended to offset the change in fair value of the hedged asset, liability or probable commitment. We evaluate hedge effectiveness at inception and on an ongoing basis. If a derivative is no longer expected to be highly effective, hedge accounting is discontinued. Hedge ineffectiveness, if any, is recorded in earnings. Cash flows from derivative contracts are reported as operating activities in the consolidated statements of cash flows.

We use currency exchange rate derivative contracts and interest rate derivative instruments to manage the impact of currency exchange and interest rate changes on earnings and cash flows. In order to minimize earnings and cash flow volatility resulting from currency exchange rate changes, we enter into derivative instruments, principally forward currency exchange rate contracts. These contracts are designed to hedge anticipated foreign currency transactions and changes in the value of specific assets and liabilities. At inception of the forward contract, the derivative is designated as either a freestanding derivative or a cash flow hedge. We do not enter into currency exchange rate derivative contracts for speculative purposes. All derivative instruments that qualify for hedge accounting are recorded at fair value on the consolidated balance sheets, as financial assets or liabilities (current or non-current) depending upon the gain or loss position of the contract and contract maturity date.

Forward contracts designated as cash flow hedges are designed to hedge the variability of cash flows associated with forecasted transactions denominated in a foreign currency that will take place in the future. For derivative instruments that are designated and qualify as a cash flow hedge, the effective portion of the gain or loss on the derivative instrument is reported as a component of accumulated other comprehensive income (loss) and reclassified into earnings to offset exchange differences originated by the hedged item or to adjust the value of operating income (expense). We use freestanding derivative forward contracts to offset exposure to the variability of the value associated with assets and liabilities denominated in a foreign currency. These derivatives are not designated as hedges, and therefore changes in the value of these forward contracts are recognized in earnings, thereby offsetting the current earnings effect of the related change in value of foreign currency denominated assets and liabilities.

We use interest rate derivative instruments designated as cash flow hedges to manage the exposure to interest rate movements and to reduce the risk of increased borrowing costs by converting floating-rate debt into fixed-rate debt. Under these agreements, we agree to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to agreed-upon notional principal amounts. The interest rate swaps are structured to mirror the payment terms of the underlying loan. The fair value of the interest rate swaps is reported in the consolidated balance sheets as financial assets or liabilities (current or non-current) depending upon the gain or loss position of the contract and the maturity of the future cash flows of the fair value of each contract. The effective portion of the gain or loss on these derivatives is reported as a component of accumulated other comprehensive income. The non-effective portion is reported in interest expense in consolidated statements of income (loss).

Fair Value Measurements

We follow the authoritative guidance on fair value measurements and disclosures with respect to assets and liabilities that are measured at fair value on both a recurring and nonrecurring basis. Under this guidance, fair value is defined as the exit price, or the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants as of the measurement date. The authoritative guidance also establishes a hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs market participants would use in valuing the asset or liability, based on market data obtained from sources independent of us. Unobservable inputs are inputs that reflect our assumptions about the factors market participants would use in valuing the asset or liability developed based upon the best information available in the circumstances. The categorization of financial assets and financial liabilities within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The hierarchy is broken down into three levels defined as follows:

- Level 1 - Inputs are quoted prices in active markets for identical assets or liabilities.
- Level 2 - Inputs include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and inputs (other than quoted prices) that are observable for the asset or liability, either directly or indirectly.
- Level 3 - Inputs are unobservable for the asset or liability.

Financial assets and liabilities that are classified as Level 2 include derivative instruments, primarily forward and option currency contracts and interest rate swaps contracts, which are valued using standard calculations and models that use readily observable market data as their basis.

Financial liabilities that are classified as Level 3 include contingent consideration arrangements resulting from acquisitions that involve potential future payment of consideration that is contingent upon the achievement of performance milestones. Contingent consideration is recognized at the acquisition date based on the consideration expected to be transferred and estimated as the probability of future cash flows discounted to present value in accordance with accepted valuation methodologies. Contingent consideration is remeasured each reporting period with the change in fair value, including accretion for the passage of time, recorded in earnings.

Investments

Cost and Equity Method Investments

Our investments in equity instruments, and related loans, are strategic investments in companies that are in varied stages of development and not publicly traded. Our equity investments are reported under Investments, and related loans under Prepaid Expenses and Other Current Assets and Other Assets, on the consolidated balance sheets. We account for our equity investments and related loans under the cost or the equity method, as appropriate, depending on our level of control over the investee. We use the equity method if we exercise significant influence over the investee but do not control the investee, and we use the cost method if we exercise less than significant influence, which is generally under 20% ownership.

Cost Method Investments

We initially record the amount of our cost method investments at cost and regularly review our investments for changes in circumstance or the occurrence of events that suggest our investment may not be recoverable. This evaluation considers all available financial information related to the investee, including valuations based on recent third-party equity investments in the investees. If an impairment is considered to be other-than-temporary, the loss is recognized in the consolidated statements of income in the period the determination is made. Impairments are reported as Impairment of cost-method investments in the consolidated statement of (loss) income.

Equity Method Investments

The cost of our investments accounted for under the equity method may give rise to a difference between the cost of the investment and our share of the investee's net book value, or a basis difference. A basis difference is assigned to assets and liabilities of the investee with remaining unassigned basis assigned to goodwill. We amortize finite lived basis differences over the life of the asset or liability. We adjust our investment carrying value each period for our share of the investee's income or loss. We report our share of the investee's losses and the amortization of basis differences in the consolidated statements of income (loss) as Income (Loss) from Equity Method Investments. We regularly review our investments for changes in circumstance or the occurrence of events that suggest our investment may not be recoverable, and if an impairment is considered to be other-than-temporary, the loss is recognized in the consolidated statements of income in the period the determination is made and reported as Losses from Equity Method Investments.

Warranty Obligation

We offer a warranty on various products. We estimate the costs that may be incurred under warranties and record a liability in the amount of such costs at the time the product is sold. The amount of the reserve recorded is equal to the net costs to repair or otherwise satisfy the claim. We include the warranty obligation in accrued liabilities and other on the consolidated balance sheets. Warranty expense is recorded to cost of goods sold in our consolidated statements of income (loss).

Retirement Benefit Plan Assumptions

We sponsor various retirement benefit plans, including defined benefit pension plans (pension benefits), defined contribution savings plans and termination indemnity plans, covering substantially all U.S. employees and employees outside the United States. Pension benefit costs include assumptions for the discount rate, retirement age, compensation rate increases and the expected return on plan assets.

Revenue Recognition

Product Revenue

We sell our products through a direct sales force and independent distributors. We recognize revenue when persuasive evidence of a sales arrangement exists, title to the goods and risk of loss transfers to customers or to independent distributors, the selling price is fixed or determinable and collectability is reasonably assured. We estimate expected sales returns based on historical data and record a reduction of sales with a return reserve. We record state and local sales taxes net; that is, we exclude sales tax from revenue.

Service Revenue

Services largely consist of technical assistance services provided to hospitals for the installation, maintenance and support in the operation of heart-lung machines and autotransfusion systems. Service related revenue is recognized on the basis of progress of the services, when services are rendered, when collectability is reasonably assured and when the amount is fixed and determinable.

Research and Development ("R&D")

All R&D costs are expensed as incurred. R&D includes costs of basic research activities as well as engineering and technical effort required to develop a new product or make significant improvement to an existing product or manufacturing process. R&D costs also include regulatory and clinical study expenses, including post-market clinical studies.

Leases

We account for leases that transfer substantially all benefits and risks incidental to the ownership of property as an acquisition of an asset and the incurrence of an obligation, and we account for all other leases as operating leases. Certain of our leases provide for tenant improvement allowances that have been recorded as deferred rent and amortized, using the straight-line method, over the life of the lease as a reduction to rent expense. In addition, scheduled rent increases and rent holidays are recognized on a straight-line basis over the term of the lease.

Stock-Based Compensation

Stock-Based Incentive Awards

We may grant stock-based incentive awards to directors, officers, key employees and consultants. We measure the cost of employee services received in exchange for an award of equity instruments based on the grant date fair market value of the award. We recognize equity-based compensation expense ratably over the period that an employee is required to provide service in exchange for the entire award (all vesting periods). We issue new shares upon stock option exercises, otherwise issuance of stock for vesting of restricted stock, restricted stock units or stock appreciation rights are issued from treasury shares. We have the right to elect to pay the cash value of vested restricted stock units in lieu of the issuance of new shares.

Stock Appreciation Rights

A stock appreciation right ("SAR") confers upon an employee the contractual right to receive an amount of cash, stock, or a combination of both that equals the appreciation in the company's stock from an award's grant date to the exercise date. SARs may be exercised at the employee's discretion during the exercise period and do not give the employee an ownership right in the underlying stock. SARs do not involve payment of an exercise price. We use the Black-Scholes option pricing methodology to calculate the grant date fair market value of SARs. We determine the expected volatility of the awards based on historical volatility. Calculation of compensation for stock awards requires estimation of employee turnover and forfeiture rates.

Restricted Stock and Restricted Stock Units

We may grant restricted stock and restricted stock units at no purchase cost to the grantee. The grantees of unvested restricted stock units have no voting rights nor rights to dividends. Sale or transfer of the stock and stock units are restricted until they are vested. The fair market value of service-based restricted stock and restricted stock units are determined using the market closing price on the grant date, and compensation is expensed ratably over the vesting period. Calculation of compensation for stock awards requires estimation of employee turnover and forfeiture rates.

Income Taxes

We are a U.K. corporation, and we operate through our various subsidiaries in a number of countries throughout the world. Our provision for income taxes is based on the tax laws and rates applicable in the jurisdictions in which we operate and earn income. We use significant judgment and estimates in accounting for our income taxes. We recognize deferred tax assets and liabilities for the anticipated future tax effects of temporary differences between the financial statements basis and the tax basis of our assets and liabilities, which are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Income tax expense compared to pre-tax income yields an effective tax rate.

We file federal and local tax returns in many jurisdictions throughout the world and are subject to income tax examinations for our fiscal year 1992 and subsequent years, with certain exceptions. While we believe that our tax return positions are fully supported, tax authorities may disagree with certain positions we have taken and assess additional taxes. Therefore, we regularly assess our tax positions in previously filed tax returns and positions we expect to take in future tax returns. Out tax positions are evaluated for recognition using a more-likely-than-not threshold. Those tax positions requiring recognition are measured as the largest amount of tax benefit that is greater than 50% likely of being realized upon effective settlement with a taxing authority that has full knowledge of all relevant information. We regularly monitor our tax positions and tax liabilities, and we reevaluate the technical merits of our tax positions. Some of the reasons a reserve for an uncertain tax benefit may be reversed are: (i) completion of a tax audit, (ii) a change in applicable tax law including a tax case or legislative guidance, or (iii) an expiration of the statute of limitations. We recognize interest and penalties associated with unrecognized tax benefits and record interest in interest expense, and penalties in selling, general and administrative expense, in the consolidated statements of income (loss).

We periodically assess the recoverability of our deferred tax assets by considering whether it is more likely than not that some or all of the actual benefit of those assets will be realized. To the extent that realization does not meet the "more-likely-than-not" criterion, we establish a valuation allowance. We periodically review the adequacy and necessity of the valuation allowance by considering significant positive and negative evidence relative to our ability to recover deferred tax assets and to determine the timing and amount of valuation allowance that should be released. This evidence includes: (i) profitability in the most recent quarters, (ii) internal forecasts for the current and next two future years, (iii) size of deferred tax asset relative to estimated profitability, (iv) the potential effects on future profitability from increasing competition, healthcare reforms and overall economic conditions, (v) limitations and potential limitations on the use of our net operating losses due to ownership changes, pursuant to IRC Section 382, and (vi) the implementation of prudent and feasible tax planning strategies, if any.

Foreign Currency

Our functional currency is the U.S. dollar, however, a portion of the revenues earned and expenses incurred by certain of our subsidiaries are denominated in currencies other than the U.S. dollar. We determine the functional currency of our subsidiaries that exist and operate in different economic and currency environments based on the primary economic environment in which the subsidiary operates, that is, the currency of the environment in which an entity primarily generates and expends cash. Our significant foreign subsidiaries are located in Europe and the U.S. The functional currency of our significant European subsidiaries is the Euro and the functional currency of our significant U.S. subsidiaries is the U.S. dollar.

Assets and liabilities for subsidiaries whose functional currency is not the U.S. dollar are translated into U.S. dollars based on a combination of both current and historical exchange rates, while their revenues earned and expenses incurred are translated into U.S. dollars at average period exchange rates. Translation adjustments are included as 'Accumulated other comprehensive income (loss)' ("AOCI") in the consolidated balance sheets. Gains and losses arising from transactions denominated in a currency different from an entity's functional currency are included in Foreign exchange and other gains (losses) in our consolidated statements of income (loss). Taxes are not provided on cumulative translation adjustments, as substantially all translation adjustments are related to earnings which are intended to be indefinitely reinvested in the countries where earned.

Segments

Prior to the Mergers we had one operating and reportable segment. Upon completion of the Mergers, we reorganized our reporting structure and aligned the segments of Sorin and Cyberonics and the underlying divisions and businesses. We currently have two operating and reportable segments, Neuromodulation and Cardiac Surgery. Refer to "Note 18. Geographic and Segment Information" for additional information.

Contingencies

The Company is subject to product liability claims, government investigations and other legal proceedings in the ordinary course of business. Legal fees and other expenses related to litigation are expensed as incurred and included in Selling, general and administrative expenses in the Consolidated Statements of Income. Contingent accruals are recorded when the Company determines that a loss is both probable and reasonably estimable. Due to the fact that legal proceedings and other contingencies are inherently unpredictable, our assessments involve significant judgment regarding future events.

Note 3 Business Combinations

The Mergers

On October 19, 2015, and pursuant to the terms of the Merger Agreement, Sorin merged with and into LivaNova, with LivaNova continuing as the surviving company, immediately followed by the merger of Merger Sub with and into Cyberonics, with Cyberonics continuing as the surviving company and as a wholly owned subsidiary of LivaNova. Following the completion of the Mergers, LivaNova became the holding company of the combined businesses of Cyberonics and Sorin, and LivaNova's ordinary shares were listed, under the ticker symbol "LIVN", on NASDAQ and admitted for listing on the standard segment of the U.K. Financial Authority's Official List and to trading on the LSE. As a result of the Mergers, on October 19, 2015, LivaNova issued approximately 48.8 million ordinary shares.

On October 19, 2015, each share of Sorin was converted into the right to receive 0.0472 shares of LivaNova, ("Sorin Exchange Ratio"), and each share of common stock of Cyberonics was converted into the right to receive one share of LivaNova. The fair value of the shares issued as total consideration of the Mergers is based on Cyberonics' closing stock price of $69.95 per share on October 16, 2015, the last business day prior to the close of the Mergers. Based on the number of outstanding shares of Sorin and Cyberonics as of October 19, 2015, former Sorin and Cyberonics shareholders held approximately 46 percent and 54 percent, respectively, of LivaNova's shares after giving effect to the Mergers.

Based on the relative voting rights of Cyberonics and Sorin shareholders immediately following completion of the Mergers and the premium paid by Cyberonics for Sorin shares, and after taking into consideration all relevant facts, Cyberonics was considered to be the acquirer for accounting purposes. LivaNova accounted for the acquisition of Sorin as a business combination using the acquisition method of accounting. Under the acquisition method of accounting, the assets acquired and liabilities assumed are recorded at their estimated fair values as of the date of the Mergers. The excess of the consideration transferred over the estimated fair values of the net assets acquired was recorded as goodwill.

Total fair value of consideration transferred in the Mergers (in thousands except for shares and per share data and the Sorin Exchange Ratio):

Total Sorin shares outstanding as of October 16, 2015		477,824,000
Sorin exchange ratio		0.0472
Shares of LivaNova issued		22,553,293
Value per share of Cyberonics as of October 16, 2015	$	69.95
Fair value of ordinary shares transferred to Sorin shareholders	$	1,577,603
Fair value of ordinary shares issued to Sorin share award holders[1]	$	9,231
Fair value of LivaNova stock appreciation rights issued to Sorin stock appreciation rights holders[2]	$	2,249
FAIR VALUE OF ORDINARY SHARES TRANSFERRED TO SORIN SHAREHOLDERS	**$**	**1,589,083**

(1) Each Sorin share award (other than a Sorin stock appreciation right) granted prior to the Sorin merger effective time accelerated, vested and was converted into the right to receive LivaNova shares based on the Sorin Exchange Ratio. The total fair value of the replacement awards is $25.2 million, including $9.2 million attributable to pre-combination services and allocated to consideration transferred to acquire Sorin. Of the remaining $16.0 million, $8.3 million was recognized immediately in the post-combination period and $7.7 million was recognized over the post-combination service period to February 28, 2017 due to the service period requirements of the awards. Refer to "Note 14. Stock-Based Incentive Plans" for further discussion of treatment of equity awards.

The consideration transferred in the Mergers was measured using the fair-value-based measure of the share awards as of the closing date. For purposes of calculating the consideration transferred, the fair-value-based measure of the Sorin share awards was determined to be the opening market price of LivaNova's shares of $69.39 on October 19, 2015.

(2) As of October 16, 2015 there were 3,815,824 Sorin stock appreciation rights. Each Sorin stock appreciation right granted prior to the Sorin merger effective time accelerated, vested and was converted into the right to receive 0.0472 LivaNova stock appreciation right based on the Sorin Exchange Ratio. The total fair value of the replacement stock appreciation rights is $3.8 million, including $2.2 million attributable to pre-combination services and allocated to consideration transferred to acquire Sorin. The remaining $1.6 million was recognized immediately in the post-combination period. Refer to "Note 14. Stock-Based Incentive Plans" for further discussion of treatment of equity awards.

The following table summarizes the fair value of the assets acquired and liabilities assumed in the Mergers on October 19, 2015, including the measurement period adjustments recognized since the fair values were presented in our report on Form 10-K/T for the transitional period ended December 31, 2015 (in thousands):

	October 19, 2015	Adjustments	October 19, 2015 (As Adjusted)
Total fair value of consideration transferred	$ 1,589,083	$ —	$ 1,589,083
Estimated fair value of assets acquired and liabilities assumed:			
Cash and cash equivalents	12,495	—	12,495
Accounts receivable	224,466	—	224,466
Inventories	233,832	—	233,832
Other current assets	60,674	(84)	60,590
Property, plant and equipment	207,639	(1,121)	206,518
Intangible assets	688,729	—	688,729
Equity investments	67,059	(72)	66,987
Other assets	7,483	(1,328)	6,155
Deferred tax assets	135,370	(121,234)	14,136
Total assets acquired	1,637,747	(123,839)	1,513,908
Current portion of debt and other obligations	110,601	—	110,601
Other current liabilities	237,855	830	238,685
Long-term debt	128,458	—	128,458
Deferred tax liabilities	279,328	(148,640)	130,688
Other long-term liabilities	55,567	—	55,567
Total liabilities assumed	811,809	(147,810)	663,999
GOODWILL	**$ 763,145**	**$ (23,971)**	**$ 739,174**

The valuation of the intangible assets acquired in the Mergers and related amortization periods are as follows (in thousands, except years):

	Valuation as of October 19, 2015	Amortization Period in Years
Customer relationships	$ 464,019	16-18
Developed technology	211,091	9-15
Sorin trade-name	13,619	4
	$ 688,729	

The valuation of Other long-term liabilities acquired in the Mergers included $2.7 million of unfavorable leases with weighted average remaining lives of 5 years.

Goodwill was calculated as the excess of the consideration transferred over the net assets recognized and represents growth opportunities and expected cost synergies of the combined company. The Mergers were expected to provide both short-term and long-term revenue enhancements and cost savings and synergy opportunities, increase the diversity of our business mix, and accelerate the entry into three emerging market opportunities in the areas of heart failure, sleep apnea and less invasive mitral valves. The Mergers were also expected to allow us to utilize and integrate certain Sorin technologies into its existing and future product lines for epilepsy and we expected our reporting units to benefit, directly or indirectly, from the synergies arising from the business combination, and as a result, we assigned the goodwill arising from the Sorin acquisition to CS, Neuromodulation and CRM. This assignment was made by taking into consideration market participant rates of return for each acquired reporting unit, CS and CRM, in order to assess the respective fair values. The remaining goodwill, allocated to Neuromodulation, which is the accounting acquirer's existing business unit, was supported by the synergies deriving from the Mergers. Goodwill recognized as a result of the acquisition is not deductible for tax purposes. Refer to "Note 7. Goodwill and Intangible Assets" for further discussion and details of the balance of goodwill.

Contingent liabilities assumed includes $9.2 million related to uncertain tax positions. Contingent liabilities also included $3.4 million for contingent payments at fair value related to two acquisitions completed by Sorin prior to the closing of the Mergers. The contingent payments for one acquisition are based on achievement of sales targets by the acquiree through June 30, 2018 and the contingent payments for the second acquisition are based on sales of cardiopulmonary disposable products and heart-lung machines through 2019 of the acquiree.

The measurement period adjustments shown in the table above were recorded prior to September 30, 2016, and reflect changes in the estimated fair values of certain assets and liabilities, primarily related to deferred income taxes, as a result of new information on facts and circumstances that existed at the time of acquisition. Adjustments were made to deferred income taxes as a result of the allocation of fair value to the legal entities. As a consequence of such push-down, deferred income taxes were presented on a net basis by jurisdiction.

We recorded reductions or (increases) to the following expenses due to the measurement period adjustments (in thousands):

	Year Ended December 31, 2016
Amortization of intangible assets	$ 1,844
Depreciation	2,790
Other costs	(40)
Total before income tax effect	4,594
Income tax	(3,756)
NET	**$ 838**

LivaNova's consolidated financial statements for the transitional period April 25, 2015 to December 31, 2015, include Sorin's results of operations from the acquisition date through December 31, 2015. Net sales and operating loss attributable to Sorin during this period were $200.1 million and $6.0 million, respectively. In relation to the Mergers, we incurred $42.1 million of transaction costs and $13.7 million of integration costs during the transitional period April 25, 2015 to December 31, 2015. The transaction costs primarily related to advisory, legal, and accounting fees are included in the merger and integration expenses line item in the consolidated statement of (loss) income. The integration costs are also included in the merger and integration expenses line on the consolidated statement of (loss) income.

Caisson Interventional, LLC Acquisition

On May 2, 2017, we acquired the remaining 51% equity interests in Caisson for a purchase price of up to $72.0 million, net of $6.3 million of debt forgiveness, consisting of $18.0 million paid at closing, $14.4 million to be paid after 12 months, and contingent consideration of up to $39.6 million to be paid on a schedule driven primarily by regulatory approvals and a sales-based earnout.

Caisson is focused on the design, development and clinical evaluation of a novel transcatheter mitral valve replacement ("TMVR") implant device with a fully transvenous delivery system.

The following table presents the acquisition date fair-value of the consideration transferred and the fair value of our interest in Caisson prior to the acquisition (in thousands):

Cash[1]	$	15,660
Debt forgiven[2]		6,309
Deferred consideration[1]		12,994
Contingent consideration[1]		29,303
Fair value of consideration transferred		64,266
Fair value of our interest prior to the acquisition[2]		52,505
FAIR VALUE OF TOTAL CONSIDERATION	**$**	**116,771**

(1) Concurrent with the acquisition, we recognized $5.8 million of post-combination compensation expense. Of this amount, $2.4 million is reflected as a reduction of $18.0 million in cash paid at closing of the acquisition, while $3.4 million increased the deferred consideration and contingent consideration liabilities recognized at the date of the acquisition to a total of $14.1 million and $31.7 million, respectively.

(2) On the acquisition date, we remeasured the notes receivable from Caisson and our existing investment in Caisson at fair value and recognized a pre-tax non-cash gain of $1.3 million and $38.1 million, respectively, which are included in 'Gain on acquisition of Caisson Interventional, LLC' in the consolidated statements of income (loss).

We have recorded no adjustments to the preliminary purchase price allocation at fair value for the Caisson acquisition, as presented in the following table (in thousands):

Cash and cash equivalents	$	1,468
In-process research and development		89,000
Goodwill		42,417
Other assets		918
Current liabilities		1,023
Deferred income tax liabilities, net		16,009
NET ASSETS ACQUIRED	**$**	**116,771**

Acquired goodwill of $9.6 million is expected to be deductible for tax purposes. Additionally, $3.0 million of the initial cash payment was deposited in escrow for future claims indemnification. Of this amount, $2.0 million is included in 'Prepaid expenses and other current assets' and the remaining $1.0 million is included in 'Other long-term assets' in the consolidated balance sheet as of December 31, 2017.

We recognized acquisition-related expenses of approximately $1.3 million for legal and valuation expenses during the year ended December 31, 2017. Additionally, the results of Caisson for the period of May 2, 2017 through December 31, 2017 added no revenue and $20.1 million in expenses in our consolidated statement of (loss) income.

The contingent consideration arrangements are composed of potential cash payments upon the achievement of certain regulatory milestones and a sales-based earnout associated with sales of products covered by the purchase agreement. The sales-based earnout was valued using projected sales from our internal strategic plans. Both arrangements are Level 3 fair value measurements and include the following significant unobservable inputs (in thousands):

Caisson Acquisition	Fair value at May 2, 2017	Valuation Technique	Unobservable Input	Ranges
Regulatory milestone-based payments	$ 14,883	Discounted cash flow	Discount rate	2.6% - 3.4%
			Probability of payment	90%-95%
			Projected payment years	2018-2023
Sales-based earnout	16,805	Monte Carlo simulation	Discount rate	11.5%-12.7%
			Sales volatility	36.9%
			Projected years of sales	2019-2033
	$ 31,688			

The following table provides a reconciliation of the beginning and ending balance of the contingent consideration liability, which consisted of arrangements that arose from the Caisson acquisition and other previous acquisitions that also included contingent consideration (in thousands):

Balance at December 31, 2016	$ 3,890
Purchase price - Caisson contingent consideration	31,688
Payments	(1,803)
Changes in fair value	56
Effect of changes in foreign currency exchange rates	142
BALANCE AT DECEMBER 31, 2017[1]	**$ 33,973**

(1) The contingent consideration liability represents contingent payments related to three acquisitions: the first and second acquisitions, in September 2015, were Cellplex PTY Ltd. in Australia and the commercial activities of a local distributor in Colombia. The contingent payments for the first acquisition are based on achievement of sales targets by the acquiree through June 30, 2018 and the contingent payments for the second acquisition are based on sales of cardiopulmonary disposable products and heart lung machines of the acquiree through December 2019. The third acquisition, Caisson, occurred in May 2017 and is discussed above. Refer to "Note 9. Fair Value Measurements."

Note 4 Discontinued Operations

On November 20, 2017, we entered into a letter of intent ("LOI") to sell CRM to MicroPort Scientific Corporation for $190.0 million in cash. We expect to enter into the definitive acquisition agreement contemplated by the LOI following completion of the notification and consultation process with CRM's employee works councils as required by local laws. Completion of the transaction is subject to entry into the definitive acquisition agreement, receipt of relevant regulatory approvals, including fulfilling the requirements of the Hong Kong Stock Exchange's Major Transactions requirements, and other customary closing conditions. We expect the transaction to close in the second quarter of 2018.

CRM develops, manufactures and markets products for the diagnosis, treatment and management of heart rhythm disorders and heart failures. CRM products include high-voltage defibrillators, cardiac resynchronization therapy devices and low-voltage pacemakers. CRM has approximately 900 employees, with operations in Clamart, France; Saluggia, Italy; and Santo Domingo, Dominican Republic.

We concluded that the sale of CRM represents a strategic shift in our business that will have a major effect on future operations and financial results. As a result, we classified the operating results of CRM as discontinued operations in our consolidated statements of operations. Additionally we tested the long-lived assets of CRM for impairment and recognized an impairment of tangible and intangible assets of $78.3 million, net of a $15.3 million tax benefit. The impairment is presented separately as Impairment of discontinued operations, net of tax on the consolidated statements of (loss) income since the impairment is significant and resulted from the agreement to sell CRM. The assets and liabilities of CRM are classified as held for sale and presented as assets (or liabilities) of discontinued operations on the consolidated balance sheets at December 31, 2017 and December 31, 2016.

The following table represents assets and liabilities of CRM are classified as held for sale and presented as assets and liabilities of discontinued operations in the consolidated balance sheets:

	December 31, 2017	December 31, 2016
Accounts receivable, net	$ 64,684	$ 62,474
Inventories	54,097	50,472
Prepaid taxes	14,725	10,038
Prepaid and other assets	3,498	4,349
Property, plant and equipment, net	12,104	20,134
Deferred tax assets, net	2,517	—
Investments	6,098	4,866
Intangible assets, net	92,966	167,589
ASSETS OF DISCONTINUED OPERATIONS	**$ 250,689**	**$ 319,922**
Accounts payable	26,501	21,018
Accrued liabilities and other	7,669	8,936
Income taxes payable	5,084	3,959
Accrued employee compensation and benefits	30,753	29,321
Deferred income taxes liability	8,068	20,009
LIABILITIES OF DISCONTINUED OPERATIONS	**$ 78,075**	**$ 83,243**

The following table represents the financial results of CRM presented as net loss from discontinued operations in the consolidated statements of (loss) income:

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015
Revenues	$ 245,171	$ 249,067	$ 52,470
Cost of sales	92,609	104,168	30,439
Gross profit	152,562	144,899	22,031
Selling, general and administrative expenses	105,831	112,427	22,155
Research and development	37,936	39,987	9,504
Merger and integration expenses	22	160	11
Restructuring expenses	(1,617)	18,566	829
Amortization of intangibles	12,737	14,476	2,704
Impairment of tangible and intangible assets	93,574	—	—
Goodwill impairment	—	18,348	—
Total operating expenses	248,483	203,964	35,203
Operating loss from discontinued operations	(95,921)	(59,065)	(13,172)
Foreign exchange and other (losses) gains	(381)	350	(111)
Loss from discontinued operations, before income tax	(96,302)	(58,715)	(13,283)
Income tax (benefit) expense	(21,635)	2,015	525
Losses from equity method investments	(4,887)	(3,933)	(1,085)
NET LOSS FROM DISCONTINUED OPERATIONS	**$ (79,554)**	**$ (64,663)**	**$ (14,893)**

Cash flows attributable to our discontinued operations are included in our consolidated statements of cash flows. For the years ended December 31, 2017 and December 31, 2016 and for the transitional period April 25, 2015 to December 31, 2015, CRM's depreciation and amortization was $18.3 million, $21.8 million and $4.3 million, capital expenditures were $6.1 million, $3.8 million and $5.0 million and stock-based compensation expense was $1.4 million, $2.1 million and $0.3 million, respectively. Fiscal year 2017 income tax benefit includes $15.3 million of benefit recognized on the impairment of CRM.

During the year ended December 31, 2017 we invested $4.5 million in MicroPort Sorin CRM (Shanghai) Co. Ltd. which is held in 'Assets of discontinued operations' on the consolidated balance sheets.

The future minimum lease payments for operating leases of CRM as of December 31, 2017 are (in thousands):

2018	$	6,107
2019		5,545
2020		4,523
2021		4,089
2022		4,077
Thereafter		20,388
TOTAL	**$**	**44,729**

Note 5 Restructuring Plans

We initiate restructuring plans to leverage economies of scale, streamline distribution and logistics and strengthen operational and administrative effectiveness in order to reduce overall costs. Costs associated with these Plans were reported as restructuring expenses in the operating results of our consolidated statement of (loss) income.

Our 2015 and 2016 Reorganization Plans (the "Plans") were initiated October 2015 and March 2016, respectively, in conjunction with the completion of the Mergers. The Plans include the closure of the R&D facility in Meylan, France and consolidation of its research and development ("R&D") capabilities into the Clamart, France facility. In addition, during the year ended December 31, 2016, we initiated a plan to exit the Costa Rica manufacturing operation and transfer its operations to Houston, Texas. We completed the exit of Costa Rica in the first half of 2017 and we plan to complete the 2015 and 2016 Reorganization Plans in the first half of 2018.

In March 2017, we committed to a plan to sell our Suzhou Industrial Park facility in Shanghai, China. As a result of this exit plan we recorded an impairment of the building and equipment of $5.4 million and accrued $0.5 million of additional costs, primarily related to employee severance, during the year ended December 31, 2017. In addition, the remaining carrying value of the land, building and equipment was reclassified to 'Assets held for sale' in March 2017, with a balance of $13.6 million as of December 31, 2017 in the consolidated balance sheet. In December, 2017, we executed a letter of intent for the sale of the Suzhou facility.

We estimate that these Plans will result in a net reduction of approximately 324 personnel of which 314 have occurred as of December 31, 2017.

The following table presents the Reorganization Plans' accruals, inventory obsolescence and other reserves, recorded in connection with the Reorganization Plans including the balances and activity related to the CRM Business Franchise, (in thousands):

	Employee Severance and Other Termination Costs	Other	Total
Balance at April 24, 2015	$ —	$ —	$ —
Charges	11,323	—	11,323
Cash payments	(4,404)	—	(4,404)
Balance at December 31, 2015	6,919	—	6,919
Charges	46,678	9,265	55,943
Cash payments / write-downs	(32,505)	(6,209)	(38,714)
Balance at December 31, 2016	$ 21,092	$ 3,056	$ 24,148
Charges	10,076	5,363	15,439
Cash payments / write-downs	(27,279)	(5,794)	(33,073)
BALANCE AT DECEMBER 31, 2017	**$ 3,889**	**$ 2,625**	**$ 6,514**

The following table presents restructuring expense by reportable segment, with discontinued operations included (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015
Cardiac Surgery[1]	$ 8,819	$ 11,042	$ 1,211
Neuromodulation[2]	561	14,769	1,079
Other	7,676	11,566	8,204
Restructuring expense from continuing operations	17,056	37,377	10,494
Discontinued operations	(1,617)	18,566	829
TOTAL	**$ 15,439**	**$ 55,943**	**$ 11,323**

(1) Cardiac Surgery restructuring expense for the year ended December 31, 2017 included building and equipment impairment of $5.4 million related to the Suzhou, China facility exit plan.

(2) Neuromodulation restructuring expense for the year ended December 31, 2016 included building and equipment impairment of $5.7 million related to the Costa Rica exit plan.

Note 6 Product Remediation Liability

In December 2015, we received an FDA Warning Letter (the "Warning Letter") alleging certain violations of FDA regulations applicable to medical device manufacturing at our Munich, Germany and Arvada, Colorado facilities. On October 13, 2016 the Centers for Disease Control and Prevention ("CDC") and FDA separately released safety notifications regarding the 3T Heater Cooler devices in response to which the Company issued a Field Safety Notice Update for U.S. users of 3T Heater Cooler devices to proactively and voluntarily contact facilities to facilitate implementation of the CDC and FDA recommendations.

At December 31, 2016, we recognized a liability for a product remediation plan related to our 3T Heater-Cooler device ("3T device"). The remediation plan we developed consists primarily of a modification of the 3T device design to include internal sealing and the addition of a vacuum system to new and existing devices. These changes are intended to address regulatory actions and to reduce further the risk of possible dispersion of aerosols from 3T devices in the operating room. We concluded that it was probable that a liability had been incurred upon management's approval of the plan and the commitments made by management to various regulatory authorities globally in November and December 2016, and furthermore, the cost associated with the plan was reasonably estimable. The deployment of this solution for commercially distributed devices has been dependent upon final validation and verification of the design changes and approval or clearance by regulatory authorities worldwide, including FDA clearance in the U.S. It is reasonably possible that our estimate of the remediation liability could materially change in future periods due to the various significant assumptions involved such as customer behavior, market reaction and the timing of approvals or clearance by regulatory authorities worldwide.

In April 2017, we obtained CE Mark in Europe for the design change of the 3T device and in May 2017 we completed our first vacuum and sealing upgrade on a customer-owned device. We are currently implementing the vacuum and sealing upgrade program in as many countries as possible throughout 2018 and beyond until all devices are upgraded. As part of the remediation plan, we also intend to perform a no-charge deep disinfection service for 3T device users who have reported confirmed M. chimaera mycobacterium contamination. Although the deep disinfection service is not yet available in the U.S., it is currently offered in many countries around the world and will be expanded to additional geographies as we receive the required regulatory approvals. Finally, we are continuing to offer the loaner program for 3T devices, initiated in the fourth quarter of 2016, to provide existing 3T device users with a new loaner 3T device at no charge pending regulatory approval and implementation of the vacuum system addition and deep disinfection service worldwide. This loaner program began in the U.S. and is being made available progressively on a global basis, prioritizing and allocating devices to 3T device users based on pre-established criteria.

Changes in the carrying amount of the product remediation liability are as follows (in thousands):

Balance at December 31, 2016	$ 33,487
Adjustments	2,452
Remediation activity	(11,283)
Effect of changes in foreign currency exchange rates	2,890
BALANCE AT DECEMBER 31, 2017[1]	**$ 27,546**

(1) At December 31, 2017, the product remediation liability is included in 'Accrued liabilities and other' at $16.8 million and 'Other long-term liabilities' at $10.7 million, in the consolidated balance sheet.

For further information, please refer to "Note 12. Commitments and Contingencies." At this stage, we have recognized no liability with respect to any lawsuits related to the 3T Heater Cooler and our related legal costs are expensed as incurred.

Note 7 Goodwill and Intangible Assets

Detail of finite-lived and indefinite-lived intangible assets (in thousands):

	December 31, 2017	December 31, 2016
Finite-lived intangible assets:		
Customer relationships	$ 327,496	$ 304,056
Developed technology	179,234	160,775
Trademarks and trade names	14,391	12,649
Other intangible assets	181	1,177
Total	521,302	478,657
Accumulated amortization	74,905	37,049
NET	**$ 446,397**	**$ 441,608**
Indefinite-lived intangible assets:		
In-process R&D	$ 89,000	$ —
Goodwill	784,242	691,712
TOTAL	**$ 873,242**	**$ 691,712**

During the year ended December 31, 2017, we recognized $89.0 million of in-process R&D related to the acquisition of Caisson.

The amortization periods for our finite-lived intangible assets as of December 31, 2017:

	Minimum Life in years	Maximum Life in years
Customer relationships	16	18
Developed technology	9	15
Trademarks and trade names	4	4
Other intangible assets	5	5

The estimated future amortization expense based on our finite-lived intangible assets at December 31, 2017 (in thousands):

2018	$ 34,720
2019	34,739
2020	34,761
2021	35,019
2022	35,019
Thereafter	272,139
TOTAL	**$ 446,397**

Goodwill and Goodwill Impairment

Our business consists of two operating Segments (which are our reporting units for goodwill testing): Neuromodulation and Cardiac Surgery.

The carrying amount of goodwill by Segment (in thousands):

	Cardiac Surgery	Neuromodulation	Other	Total
December 31, 2016	$ 375,769	$ 315,943	$ —	$ 691,712
Goodwill as a result of acquisitions[1]	—	—	42,417	42,417
Foreign currency adjustments	50,113	—	—	50,113
DECEMBER 31, 2017	**$ 425,882**	**$ 315,943**	**$ 42,417**	**$ 784,242**

(1) Goodwill recognized during the year ended 2017 was the result of the Caisson acquisition. Refer to "Note 3. Business Combinations."

We performed a quantitative assessment for our Neuromodulation and Cardiac Surgery reporting units as of October 1, 2017. We concluded that the fair value of Neuromodulation and Cardiac Surgery was substantially in excess of the carrying value of the respective reporting units, as evidenced by the estimated fair value of the Neuromodulation and Cardiac Surgery reporting units calculated for the purpose of reconciling the fair value of our reporting units to our market capitalization. Therefore, we concluded that it remains more-likely than not that the Neuromodulation and Cardiac Surgery reporting units goodwill was not impaired.

Note 8 Investments

Cost Method Investments

Our cost method investments are included in Investments in the consolidated balance sheets and consist of our equity positions in the following privately-held companies (in thousands):

	December 31, 2017	December 31, 2016
Respicardia Inc.[1]	$ 17,422	$ 17,518
ImThera Medical, Inc.[2]	12,900	12,000
Rainbow Medical Ltd.[3]	1,172	3,733
MD Start II	1,199	526
	$ 32,693	**$ 33,777**

(1) Respicardia is a privately funded U.S. company developing an implantable device designed to restore a more natural breathing pattern during sleep in patients with central sleep apnea by transvenously stimulating the phrenic nerve. We have a loan outstanding to Respicardia with a carrying amount of $0.4 million, as of December 31, 2017, which is included in 'Prepaid expenses and other current assets' on the consolidated balance sheet. During the year ended December 31, 2017, we converted a loan to Respicardia of $1.5 million to equity, we recorded an impairment of $5.5 million and we recorded an FX gain of $3.9 million, Refer to the paragraph below for further details regarding the impairment.

(2) ImThera Medical, Inc. ("ImThera") is a privately funded U.S. company developing a neurostimulation device system for the treatment of obstructive sleep apnea. We have a loan outstanding to ImThera as of December 31, 2017 with a carrying amount of $1.0 million, which is included in 'Other assets' in the consolidated balance sheet. On January 16, 2018 we acquired the remaining outstanding interests in ImThera. Refer to "Note 22. Subsequent Events" for a discussion of our acquisition of ImThera.

(3) Rainbow Medical ("Rainbow Medical") is a private Israeli venture capital company that seeds and grows companies developing medical devices in a diverse range of medical fields. During the fourth quarter of 2017, we impaired our investment in Rainbow Medical. Refer to the paragraph below for further details.

Respicardia Impairment

We recognized an impairment of our cost-method investment in Respicardia during the year ended December 31, 2017. Terms of an additional round of financing with a new strategic investor indicated that the carrying value of our aggregate investment might not be recoverable and that the decrease in value of our aggregate investment was other than temporary. We, therefore, estimated the fair value of our investment using the income approach. The estimated fair value of our investment was below our carrying value by $5.5 million. This impairment was included in 'Impairment of cost-method investments' in the consolidated statement of (loss) income.

Rainbow Medical Impairment

We recognized an impairment of our cost-method investment in Rainbow Medical during the year ended December 31, 2017. An additional round of financing, which included a new investor, indicated that the carrying value of our aggregate investment might not be recoverable and that the decrease in value of our aggregate investment was other than temporary. We, therefore, estimated the fair value of our investment using the income approach. The estimated fair value of our aggregate investment was below our carrying value by $3.0 million. This aggregate impairment was included in 'Impairment of investments' in the consolidated statement of (loss) income.

Istituto Europeo di Oncologia S.R.L Sale

During the year ended December 31, 2017, we sold our investment in Istituto Europeo di Oncologia S.R.L, for a gain of $3.2 million. This gain is included in 'Foreign exchange and other gains (losses)' in the consolidated statement of (loss) income.

Equity Method Investments

Our equity method investments are included in Investments in the consolidated balance sheets and consist of our equity position in the following entities (in thousands, except for percent ownership):

	% Ownership[1]	December 31, 2017	December 31, 2016
Highlife S.A.S.[2]	25%	$ 1,782	$ 6,009
Caisson Interventional LLC[3]		—	16,424
Other		17	16
TOTAL		**$ 1,799**	**$ 22,449**

(1) Ownership percentage as of December 31, 2017.

(2) Highlife S.A.S is a privately held clinical-stage medical device company located in France and is focused on the development of a unique transcatheter mitral valve replacement system to treat patients with mitral regurgitation. During the year ended December 31, 2017, we recognized an impairment of our investment in, and notes receivable from, Highlife. Refer to the paragraph below for further details. In addition, due to additional investments by third parties and the conversion of our note receivable to equity our equity interest fell to 25% from 38% during the year ended December 31, 2017.

(3) On May 2, 2017, we acquired the remaining 51% equity interests in Caisson Interventional LLC ("Caisson"), and we began consolidating the results of Caisson as of the acquisition date. Refer to "Note 3. Business Combinations" for further information.

Highlife Impairment

We recognized an impairment of our equity-method investment in, and notes receivable from, Highlife S.A.S. ("Highlife") during the year ended December 31, 2017. Certain factors, including a revision in our investment strategy and a new strategic investor, indicated that the carrying value of our aggregate investment might not be recoverable and that the decrease in value of our aggregate investment was other than temporary. We, therefore, estimated the fair value of our investment and notes receivable using the market approach. The estimated fair value of our aggregate investment was below our carrying value by $13.0 million. This aggregate impairment was included in 'Losses from equity method investments' in the consolidated statements of income (loss).

Note 9 Fair Value Measurements

We review the fair value hierarchy classification on a quarterly basis. Changes in the ability to observe valuation inputs may result in a reclassification of levels for certain securities within the fair value hierarchy. There were no transfers between Level 1, Level 2, or Level 3 during the year ended December 31, 2017 or December 31, 2016.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following table provides information by level for assets and liabilities that are measured at fair value on a recurring basis (in thousands):

		Fair Value Measurements Using Inputs Considered as:		
	Fair Value as of December 31, 2017	Level 1	Level 2	Level 3
Assets:				
Derivative assets - freestanding instruments (foreign currency exchange rate "FX")	$ 519	$ —	$ 519	$ —
TOTAL ASSETS	**$ 519**	**$ —**	**$ 519**	**$ —**
Liabilities:				
Derivative liabilities - designated as cash flow hedges (FX)	$ 460	$ —	$ 460	$ —
Derivative liabilities - designated as cash flow hedges (interest rate swaps)	1,585	—	1,585	—
Contingent consideration	33,973	—	—	33,973
TOTAL LIABILITIES	**$ 36,018**	**$ —**	**$ 2,045**	**$ 33,973**

	Fair Value as of December 31, 2016	Fair Value Measurements Using Inputs Considered as: Level 1	Level 2	Level 3
Assets:				
Derivative assets - designated as cash flow hedges (FX)	$ 4,911	$ —	$ 4,911	$ —
Derivative assets - freestanding instruments (FX)	3,358	—	3,358	—
TOTAL ASSETS	**$ 8,269**	**$ —**	**$ 8,269**	**$ —**
Liabilities:				
Derivative liabilities - designated as cash flow hedges (interest rate swaps)	$ 2,334	$ —	$ 2,334	$ —
Contingent consideration	3,890	—	—	3,890
TOTAL LIABILITIES	**$ 6,224**	**$ —**	**$ 2,334**	**$ 3,890**

Our recurring fair value measurements, using significant unobservable inputs (level 3), relate solely to our contingent consideration liability. Refer to "Note 3. Business Combinations" for a discussion of the changes in the fair value of our contingent consideration liability.

Assets and Liabilities that are Measured at Fair Value on a Nonrecurring Basis

Our investment in entities accounted for under the cost-method and the equity method have no quoted market prices. These investments and our non-financial assets such as: goodwill, intangible assets, and PP&E, are measured at fair value if there is an indication of impairment and recorded at fair value only when an impairment is recognized. We classify the measurement input for these assets as Level 3 inputs within the fair value hierarchy. Refer to "Note 8. Investments" for further information.

Other

The carrying values of our cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximate their fair values due to the short-term nature of these items.

The carrying value of our long-term debt including the short-term portion, as of December 31, 2017, was $87.8 million which we believe approximates fair value.

Note 10 Financing Arrangements

The outstanding principal amount of long-term debt (in thousands, except interest rates):

	Principal Amount at December 31, 2017	Principal Amount at December 31, 2016	Maturity	Effective Interest Rate
European Investment Bank[1]	$ 69,893	$ 78,987	June 2021	0.95%
Mediocredito Italiano[2]	9,118	7,276	December 2023	0.50% - 3.10%
Banca del Mezzogiorno[3]	5,499	6,747	December 2019	0.50% - 3.15%
Bpifrance (ex-Oséo)	1,450	1,909	October 2019	2.58%
Region Wallonne	845	798	December 2023 and June 2033	0.00% - 2.45%
Mediocredito Italiano - mortgages and other	997	799	September 2021 and September 2026	0.80% -1.30%
Total long-term facilities	87,802	96,516		
Less current portion of long-term debt	25,844	21,301		
TOTAL LONG-TERM DEBT	**$ 61,958**	**$ 75,215**		

(1) The European Investment Bank ("EIB") loan was obtained in July 2014 to support product development projects. The interest rate for the EIB loan is reset by the lender each quarter based on the Euribor. Interest payments are paid quarterly and principal payments are paid semi-annually.

(2) We obtained the Mediocredito Italiano Bank loan in July 2016 as part of the Fondo Innovazione Teconologica program implemented by the Italian Ministry of Education.

(3) The Banca del Mezzogiorno loan was obtained in January 2015 to support R&D projects as a part of the Large Strategic Project program of the Italian Ministry of Education.

Revolving Credit

The outstanding principal amount of our short-term unsecured revolving credit agreements and other agreements with various banks was $58.2 million and $26.3 million, at December 31, 2017 and December 31, 2016, respectively, with interest rates ranging from 0.1% to 9.3% and loan terms ranging from one day to 180 days.

European Investment Bank Financing Agreement

On June 29, 2017, we entered into a new finance contract (the "Finance Contract") with the EIB to support financing of certain R&D projects. The Finance Contract has a borrowing base of €100.0 million (approximately $119.9 million) and can be drawn in up to two tranches, each in a minimum amount of €50.0 million (approximately $60.0 million). The fixed rate tranche accrues interest at an annual interest rate determined by the EIB at the time of the borrowing while the variable rate tranche accrues EUR or USD denominated borrowings at the Euro Interbank Offered Rate or London Interbank Offered Rate, respectively, plus 0.68%. Drawdowns must occur by December 30, 2018, and the last repayment date of any tranche will be no earlier than four years and no later than eight years after the disbursement of the relevant tranche. Loans under the Finance Contract are subject to certain covenants and other terms and conditions. No loan drawdowns have occurred as of December 31, 2017.

Note 11 Derivatives and Risk Management

Due to the global nature of our operations, we are exposed to foreign currency exchange rate fluctuations. In addition, due to certain loans with floating interest rates, we are also subject to the impact of changes in interest rates on our interest payments. We enter into foreign currency exchange rate ("FX") derivative contracts and interest rate swap contracts to reduce the impact of foreign currency rate and interest rate fluctuations on earnings and cash flow. We measure all outstanding derivatives each period end at fair value and report the fair value as either financial assets or liabilities in the consolidated balance sheets. We do not enter into derivative contracts for speculative purposes. At inception of the contract, the derivative is designated as either a freestanding derivative or a hedge. Derivatives that are not designated as hedging instruments are referred to as freestanding derivatives with changes in fair value included in earnings.

If the derivative qualifies for hedge accounting, depending on the nature of the hedge and hedge effectiveness, changes in the fair value of the derivative will either be recognized immediately in earnings or recorded in other 'Accumulated other comprehensive income' ("AOCI") until the hedged item is recognized in earnings upon settlement/termination. FX derivative gains and losses in AOCI are reclassified to the consolidated statement of (loss) income as shown in the tables below and interest rate swap gains and losses in AOCI are reclassified to interest expense in the consolidated statement of (loss) income. We evaluate hedge effectiveness at inception and on an ongoing basis. If a derivative is no longer expected to be highly effective, hedge accounting is discontinued. Hedge ineffectiveness, if any, is recorded in earnings. Cash flows from derivative contracts are reported as operating activities in the consolidated statements of cash flows.

Freestanding Derivative FX Contracts

The gross notional amount of FX derivative contracts, not designated as hedging instruments, outstanding at December 31, 2017 and December 31, 2016 was $231.9 million and $489.1 million, respectively. These derivative contracts are designed to offset the FX effects in earnings of various intercompany loans, our European Investment Bank loan, and trade receivables. We recorded net gains (losses) for these freestanding derivatives of $(11.7) million and $11.0 million for the years ended December 31, 2017 and December 31, 2016, respectively. These gains and losses are included in 'Foreign exchange and other gains (losses)' in the consolidated statements of income (loss).

Cash Flow Hedges

Foreign Currency Risk

We utilize FX derivative contracts, designed as cash flow hedges, to hedge the variability of cash flows associated with our 12 month USD forecasts of revenues denominated in British Pound, Japanese Yen and Canadian Dollars. We transfer to earnings from accumulated other comprehensive income (loss), the gain or loss realized on the FX derivative contracts at the time of invoicing.

There was no hedge ineffectiveness and there were no components of the FX derivative contracts excluded in the measurement of hedge effectiveness during the years ended December 31, 2017 and December 31, 2016.

During the year ended December 31, 2016, we discontinued and settled certain of our FX derivative contracts due to changes in our foreign currency revenue forecast that resulted in a gain of $0.2 million reclassified to earnings from accumulated other comprehensive (loss).

Interest Rate Risk

In July 2014, Sorin entered into a European Investment Bank ("EIB") long-term loan agreement that matures in June 2021 with variable interest payments due quarterly based on the Euribor 3 month floating interest rate. To minimize the impact of changes in the interest rate we entered into an interest rate swap agreement program to swap the EIB floating-rate interest payments for fixed-rate interest payments. The interest rate swap contracts qualify for, and are designated as, cash flow hedges.

There was no interest rate swap hedge ineffectiveness or component of the swap contract excluded in the measurement of hedge effectiveness during the years ended December 31, 2017 and December 31, 2016.

Notional amounts of open derivative contracts designated as cash flow hedges (in thousands):

Description of derivative contract:	December 31, 2017	December 31, 2016
FX derivative contracts to be exchanged for British Pounds	$ 16,847	$ 6,663
FX derivative contracts to be exchanged for Japanese Yen	32,302	57,840
FX derivative contracts to be exchanged for Canadian Dollars	16,494	–
Interest rate swap contracts	55,965	63,246
	$ 121,608	**$ 127,749**

After-tax net loss associated with derivatives designated as cash flow hedges recorded in the ending balance of AOCI and the amount expected to be reclassified to earnings in the next 12 months (in thousands):

	December 31, 2017	Amount Expected to be Reclassified to Earnings in Next 12 Months
FX derivative contracts	$ (712)	$ (712)
Interest rate swap contracts	(207)	(59)
	$ (919)	**$ (771)**

Pre-tax gains (losses) for derivative contracts designated as cash flow hedges recognized in 'Other comprehensive income (loss)' ("OCI") and the amount reclassified to earnings from AOCI (in thousands):

		Year Ended December 31, 2017	
Description of Derivative Contract	Location in Earnings of Reclassified Gain or Loss	Losses Recognized in OCI	Gains (Losses) Reclassified from OCI to Earnings:
FX derivative contracts	Foreign Exchange and Other	$ (9,861)	$ (6,471)
FX derivative contracts	SG&A	–	2,084
Interest rate swap contracts	Interest expense	–	939
		$ (9,861)	**$ (3,448)**

		Year Ended December 31, 2016	
Description of Derivative Contract	Location in Earnings of Reclassified Gain or Loss	Gains Recognized in OCI	Gains (Losses) Reclassified from OCI to Earnings:
FX derivative contracts	Foreign Exchange and Other	$ 2,874	$ 3,705
FX derivative contracts	SG&A	–	(4,218)
Interest rate swap contracts	Interest expense	85	(458)
		$ 2,959	**$ (971)**

The following tables present the fair value, and the location of, derivative contracts reported in the consolidated balance sheets (in thousands):

December 31, 2017	Asset Derivatives		Liability Derivatives	
Derivatives Designated as Hedging Instruments	**Balance Sheet Location**	**Fair Value[1]**	**Balance Sheet Location**	**Fair Value[1]**
Interest rate swap contracts	Prepaid expenses and other current assets	$ —	Accrued liabilities	$ 834
Interest rate swap contracts	Other assets	—	Other long-term liabilities	751
FX derivative contracts	Prepaid expenses and other current assets	—	Accrued liabilities	460
Total derivatives designated as hedging instruments		—		2,045
Derivatives Not Designated as Hedging Instruments				
FX derivative contracts	Prepaid expenses and other current assets	519	Accrued liabilities	—
Total derivatives not designated as hedging instruments		519		—
TOTAL DERIVATIVES		**$ 519**		**$ 2,045**

December 31, 2016	Asset Derivatives		Liability Derivatives	
Derivatives Designated as Hedging Instruments	**Balance Sheet Location**	**Fair Value[1]**	**Balance Sheet Location**	**Fair Value[1]**
Interest rate swap contracts	Prepaid expenses and other current assets	$ —	Accrued liabilities	$ 942
Interest rate swap contracts	Other assets	—	Other long-term liabilities	1,392
FX derivative contracts	Prepaid expenses and other current assets	4,911	Accrued liabilities	—
Total derivatives designated as hedging instruments		4,911		2,334
Derivatives Not Designated as Hedging Instruments				
FX derivative contracts	Prepaid expenses and other current assets	3,358	Accrued liabilities	—
Total derivatives not designated as hedging instruments		3,358		—
TOTAL DERIVATIVES		**$ 8,269**		**$ 2,334**

(1) For the classification of input used to evaluate the fair value of our derivatives, refer to "Note 9. Fair Value Measurements."

Note 12 Commitments and Contingencies

FDA Warning Letter

On December 29, 2015, the FDA issued a Warning Letter (the "Warning Letter") alleging certain violations of FDA regulations applicable to medical device manufacturers at our Munich, Germany and Arvada, Colorado facilities.

The FDA inspected the Munich facility from August 24, 2015 to August 27, 2015 and the Arvada facility from August 24, 2015 to September 1, 2015. On August 27, 2015, the FDA issued a Form 483 identifying two observed non-conformities with certain regulatory requirements at the Munich facility. We did not receive a Form 483 in connection with the FDA's inspection of the Arvada facility. Following the receipt of the Form 483, we provided written responses to the FDA describing corrective and preventive actions that were underway or to be taken to address the FDA's observations at the Munich facility. The Warning Letter responded in part to our responses and identified other alleged violations related to the manufacture of our 3T Heater-Cooler device that were not previously included in the Form 483.

The Warning Letter further stated that our 3T devices and other devices we manufactured at our Munich facility are subject to refusal of admission into the U.S. until resolution of the issues set forth by the FDA in the Warning Letter. The FDA has informed us that the import alert is limited to the 3T devices, but that the agency reserves the right to expand the scope of the import alert if future circumstances warrant such action. The Warning Letter did not request that existing users cease using the 3T device, and manufacturing and shipment of all of our products other than the 3T device remain unaffected by the import limitation. To help clarify these issues for current customers, we issued an informational Customer Letter in January 2016 and that same month agreed with the FDA on a process for shipping 3T devices to existing U.S. users pursuant to a certificate of medical necessity program.

Finally, the Warning Letter stated that premarket approval applications for Class III devices to which certain Quality System regulation deviations identified in the Warning Letter are reasonably related will not be approved until the violations have been corrected; however, this restriction applies only to the Munich and Arvada facilities, which do not manufacture or design devices subject to Class III premarket approval.

We continue to work diligently to remediate the FDA's inspectional observations for the Munich facility, as well as the additional issues identified in the Warning Letter. We take these matters seriously and intend to respond timely and fully to the FDA's requests.

CDC and FDA Safety Communications and Company Field Safety Notice Update

On October 13, 2016, the Centers for Disease Control and Prevention ("CDC") and FDA separately released safety notifications regarding the 3T devices. The CDC's Morbidity and Mortality Weekly Report ("MMWR") and Health Advisory Notice ("HAN") reported that tests conducted by CDC and its affiliates indicate that there appears to be genetic similarity between both patient and 3T device strains of the non-tuberculous mycobacterium ("NTM") bacteria M. chimaera isolated in hospitals in Iowa and Pennsylvania. Citing the geographic separation between the two hospitals referenced in the investigation, the report asserts that 3T devices manufactured prior to August 18, 2014 could have been contaminated during the manufacturing process. The CDC's HAN and FDA's Safety Communication, issued contemporaneously with the MMWR report, each assess certain risks associated with 3T devices and provide guidance for providers and patients. The CDC notification states that the decision to use the 3T device during a surgical operation is to be taken by the surgeon based on a risk approach and on patient need. Both the CDC's and FDA's communications confirm that 3T devices are critical medical devices and enable doctors to perform life-saving cardiac surgery procedures.

Also on October 13, 2016, in response to the Warning Letter and CDC's HAN and FDA's Safety Commission, we issued a Field Safety Notice Update for U.S. users of 3T devices to proactively and voluntarily contact facilities to aid in implementation of the CDC and FDA recommendations. In the fourth quarter of 2016, we initiated a program to provide existing 3T device users with a new loaner 3T device at no charge pending regulatory approval and implementation of additional risk mitigation strategies worldwide. This loaner program began in the U.S. and is being made available progressively on a global basis, prioritizing and allocating devices to 3T device users based on pre-established criteria. We anticipate that this program will continue until we are able to address customer needs through a broader solution that includes implementation of one or more of the risk mitigation strategies currently under review with regulatory agencies. We are also currently implementing a vacuum and sealing upgrade program in as many countries as possible throughout 2018 and beyond until all devices are upgraded. Furthermore, we intend to perform a no-charge deep disinfection service for 3T device users who have reported confirmed M. chimaera mycobacterium contamination. Although the deep disinfection service is not yet available in the U.S., it is currently offered in many countries around the world and will be expanded to additional geographies as we receive the required regulatory approvals.

On December 31, 2016, we recognized a liability for our product remediation plan related to our 3T device. We concluded that it was probable that a liability had been incurred upon management's approval of the plan and the commitments made by management to various regulatory authorities globally in November and December 2016, and furthermore, the cost associated with the plan was reasonably estimable. At December 31, 2017, the product remediation liability was $27.5 million. Refer to "Note 6. Product Remediation Liability" for additional information.

Litigation

The Company is currently involved in litigation involving our 3T heater-cooler product. The litigation includes a class action complaint in the U.S. District Court for the Middle District of Pennsylvania, federal multi-district litigation in the U.S. District Court for the Middle District of Pennsylvania and cases in various state courts and jurisdictions outside the U.S. As of February 27, 2017, we are involved in approximately 110 claims worldwide, with the majority of the claims in various federal or state courts throughout the United States. The complaints generally seek damages and other relief based on theories of strict liability, negligence, breach of express and implied warranties, failure to warn, design and manufacturing defect, fraudulent and negligent misrepresentation/concealment, unjust enrichment, and violations of various state consumer protection statutes. The class action consists of all Pennsylvania residents who underwent open heart surgery at WellSpan York Hospital and Penn State Milton S. Hershey Medical Center between 2011 and 2015 and who currently are asymptomatic for NTM infection. Members of the class seek declaratory relief that the 3T devices are defective and unsafe for intended uses, medical monitoring, damages, and attorneys' fees. LivaNova has filed a petition for permission to appeal the class certification order with the U.S. Court of Appeals for the Third Circuit.

We have not recognized an expense related to damages in connection with these matters because any potential loss is not currently probable or reasonably estimable. In addition we cannot reasonably estimate a range of potential loss, if any, that may result from these matters.

Civil Investigative Demand

On May 31, 2017, the Company received a Civil Investigative Demand (CID) from the US Attorney's Office for the Northern District of Georgia. The CID requested certain documents relating to sales and marketing of VNS devices and related products in the State of Georgia. We have not recognized an expense related to this matter because any potential loss is not currently probable or reasonably estimable. In addition we cannot reasonably estimate a range of potential loss, if any, that may result from this matter.

Other Legacy Sorin Matters

SNIA Litigation

Our subsidiary, Sorin S.p.A. was created as a result of a spin-off (the "Sorin spin-off") from SNIA S.p.A. ("SNIA") in January, 2004. SNIA subsequently became insolvent and the Italian Ministry of the Environment and the Protection of Land and Sea (the "Italian Ministry of the Environment"), sought compensation from SNIA in an aggregate amount of approximately $4 billion for remediation costs relating to the environmental damage at chemical sites previously operated by SNIA's other subsidiaries.

In September 2011 and July 2014, the Bankruptcy Court of Udine and the Bankruptcy Court of Milan held (in proceedings to which we are not parties) that the Italian Ministry of the Environment and other Italian government agencies (the "Public Administrations") were not creditors of either SNIA or its subsidiaries in connection with their claims in the Italian insolvency proceedings. The Public Administrations appealed and in January 2016, the Court of Udine rejected the appeal. The Public Administrations have also appealed that decision.

In January 2012, SNIA filed a civil action against Sorin in the Civil Court of Milan asserting joint liability of a parent and a spun-off company. On April 1, 2016, the Court of Milan dismissed all legal actions of SNIA and of the Public Administrations further requiring the Public Administrations to pay Sorin approximately $360,000 for legal fees. The Public Administrations appealed the 2016 Decision to the Court of Appeal of Milan and a final hearing on the matter has been scheduled for March 21, 2018.

We have not recognized an expense in connection with this matter because any potential loss is not currently probable or reasonably estimable. In addition, we cannot reasonably estimate a range of potential loss, if any, that may result from this matter.

Environmental Remediation Order

On July 28, 2015, Sorin received an administrative order (the "Remediation Order") from the Italian Ministry of the Environment directing prompt commencement of environmental remediation at the chemical sites previously operated by SNIA's other subsidiaries. We challenged the Remediation Order before the Administrative Court of Lazio in Rome (the "TAR"), and the TAR annulled the Remediation Order. The Italian Ministry of the Environment appealed. We have not recognized an expense in connection with this matter because any potential loss is not currently probable or reasonably estimable. In addition, we cannot reasonably estimate a range of potential loss, if any, that may result from this matter.

Opposition to Merger Proceedings

On July 28, 2015, the Public Administrations filed an opposition proceeding to the merger between Sorin and Cyberonics (the "Merger"), before the Commercial Courts of Milan. The Court authorized the Merger and the Public Administrations did not appeal this decision. The proceeding then continued as a civil case, with the Public Administration seeking damages. The Commercial Court of Milan delivered a decision in October 2016, fully rejecting the Public Administration's request and awarding us approximately $480 thousand in damages for frivolous litigation and legal fees. The Public Administrations appealed to the Court of Appeal of Milan.

Tax Litigation

In a tax audit report received October 30, 2009, the Regional Internal Revenue Office of Lombardy (the "Internal Revenue Office") informed Sorin Group Italia S.r.l. that, among several issues, it was disallowing in part (for a total of €102.6 million (approximately $123.0 million), related to tax years 2002 through 2006) a tax-deductible write down of the investment in the U.S. company, Cobe Cardiovascular Inc., which Sorin Group Italia S.r.l. recognized in 2002 and deducted in five equal installments, beginning in 2002. In December 2009, the Internal Revenue Office issued notices of assessment for 2002, 2003 and 2004. The assessments for 2002 and 2003 were automatically voided for lack of merit. In December 2010 and October 2011, the Internal Revenue Office issued notices of assessment for 2005 and 2006, respectively. We challenged all three notices of assessment (for 2004, 2005 and 2006) before the relevant Provincial Tax Courts.

The preliminary challenges filed for 2004, 2005 and 2006 were denied at the first jurisdictional level. We appealed these decisions. The appeal submitted against the first-level decision for 2004 was successful. The Internal Revenue Office appealed this second-level decision to the Italian Supreme Court (Corte di Cassazione) on February 3, 2017. The Italian Supreme Court's decision is pending.

The appeals submitted against the first-level decisions for 2005 and 2006 were rejected. We appealed these adverse decisions to the Italian Supreme Court, where the matters are still pending.

In November 2012, the Internal Revenue Office served a notice of assessment for 2007, and in July 2013, served a notice of assessment for 2008. In these matters the Internal Revenue Office claims an increase in taxable income due to a reduction (similar to the previous notices of assessment for 2004, 2005 and 2006) of the losses reported by Sorin Group Italia S.r.l. for the 2002, 2003 and 2004 tax periods, and subsequently utilized in 2007 and 2008. We challenged both notices of assessment. The Provincial Tax Court of Milan has stayed its decision for years 2007 and 2008 pending resolution of the litigation regarding years 2004, 2005, and 2006. The total amount of losses in dispute is €62.6 million (approximately $75.1 million). We have continuously reassessed our potential exposure in these matters, taking into account the recent, and generally adverse, trend to Italian taxpayers in this type of litigation. Although we believe that our defensive arguments are strong, noting the adverse trend in some of the court decisions, we have recognized a reserve for an uncertain tax position of €17.0 million (approximately $20.4 million).

Other Matters

Additionally, we are the subject of various pending or threatened legal actions and proceedings that arise in the ordinary course of our business. These matters are subject to many uncertainties and outcomes that are not predictable and that may not be known for extended periods of time. Since the outcome of these matters cannot be predicted with certainty, the costs associated with them could have a material adverse effect on our consolidated net (loss) income, financial position or liquidity.

Lease Agreements

We have operating leases for facilities and equipment. Rent expense from all operating leases amounted to approximately $18.8 million, $15.6 million, $3.1 million and $0.8 million for the years ended December 31, 2017 and December 31, 2016, for the transitional period from April 25, 2015 to December 31, 2015 and for the fiscal year ended April 24, 2015, respectively.

The future minimum lease payments for operating leases related to continuing operations as of December 31, 2017 are (in thousands):

2018	$ 13,584
2019	11,633
2020	9,565
2021	7,053
2022	5,864
Thereafter	24,632
TOTAL	**$ 72,331**

Note 13 Stockholders' Equity

Preferred stock

LivaNova is not authorized to issue preferred stock and no Cyberonics' preferred stock was outstanding at the consummation of the Mergers on October 19, 2015.

Common stock of Cyberonics and ordinary shares of LivaNova

Prior to the Mergers, shares of Cyberonics common stock were registered pursuant to Section 12(b) of the Exchange Act and listed on NASDAQ under the ticker symbol "CYBX," and Sorin Ordinary Shares were listed on the Mercato Telematico Azionario organized and managed by Borsa Italiana S.p.A. (the "Italian Stock Exchange"). Shares of Cyberonics common stock and the Sorin shares were suspended from trading on NASDAQ and the Italian Stock Exchange, respectively, prior to the open of trading on October 19, 2015. Following the completion of the Mergers, LivaNova became the holding company of the combined businesses of Cyberonics and Sorin, and LivaNova's shares were listed on NASDAQ and listed on the Official List of the U.K.'s Financial Conduct Authority and admitted to trading on the Main Market of the London Stock Exchange under the ticker symbol "LIVN." We announced on February 23, 2017 our voluntary cancellation of our standard listing of our shares with the London Stock Exchange ("LSE"). We took this action due to the low volume of our share trading on the LSE and trading ceased at the close of business on April 4, 2017. We continue to serve our shareholders through our listing on the NASDAQ Stock Market.

Share repurchase plans

On August 1, 2016, the Board of Directors authorized a share repurchase plan pursuant to an authority granted by shareholders at the 2016 annual general meeting held on June 15, 2016. The repurchase program was structured to enable us to buy back up to $30 million of ordinary shares on NASDAQ

in the period ended December 31, 2016 and an aggregate of $150 million of ordinary shares (inclusive of the $30 million of ordinary shares set out above) also on NASDAQ up to and including December 31, 2018. In November 2016, the share repurchase plan was amended to authorize the repurchase up to $50 million of ordinary shares through December 31, 2016 (instead of the originally authorized $30 million). Ordinary shares repurchased under the repurchase plan are canceled. As of December 31, 2016, we repurchased 993,339 shares under this plan at a cost of $50.0 million at an average price per share of $50.32. All repurchased shares were canceled and are no longer considered issued or outstanding. We did not repurchase any additional shares during the year ended December 31, 2017.

Share repurchase plans prior to the Mergers

Common shares were repurchased on the open market pursuant to the Cyberonics' Board of Directors-approved repurchase plans during the fiscal year ended April 24, 2015. Cyberonics repurchased 875,121 common shares on the open market at an average price of $55.94.

Accumulated other comprehensive income

The table below presents the change in each component of accumulated other comprehensive income (loss), net of tax and the reclassifications out of accumulated other comprehensive income into net (loss) earnings for the years ended December 31, 2017 and December 31, 2016 (in thousands):

	Change in Unrealized Gain (Loss) on Cash Flow Hedges	Foreign Currency Translation Adjustments[1]	Total
As of December 31, 2015	$ 888	$ (55,116)	$ (54,228)
Other comprehensive income (loss) before reclassifications, before tax	2,959	(16,990)	(14,031)
Tax benefit (expense)	(795)	—	(795)
Other comprehensive income (loss) before reclassifications, net of tax	2,164	(16,990)	(14,826)
Reclassification of loss from accumulated other comprehensive income, before tax	971	—	971
Tax effect	(404)	—	(404)
Reclassification of loss from accumulated other comprehensive income, after tax	567	—	567
Net current-period other comprehensive income (loss), net of tax	2,731	(16,990)	(14,259)
As of December 31, 2016	3,619	(72,106)	(68,487)
Other comprehensive income (loss) before reclassifications, before tax	(9,861)	118,338	108,477
Tax benefit (expense)	2,653	—	2,653
Other comprehensive income (loss) before reclassifications, net of tax	(7,208)	118,338	111,130
Reclassification of loss from accumulated other comprehensive income, before tax	3,448	—	3,448
Tax effect	(778)	—	(778)
Reclassification of loss from accumulated other comprehensive income, after tax	2,670	—	2,670
Net current-period other comprehensive income (loss), net of tax	(4,538)	118,338	113,800
AS OF DECEMBER 31, 2017	**$ (919)**	**$ 46,232**	**$ 45,313**

(1) Taxes were not provided for foreign currency translation adjustments as translation adjustments are related to earnings that are intended to be reinvested in the countries where earned.

Note 14 Stock-Based Incentive Plans

Pre-Merger and the Mergers

Sorin awards exchanged for LivaNova awards

Prior to the Mergers, the Sorin Board of Directors adopted the Long-Term Incentive 2012-2014 (the "2012-2014 Plan), 2013-2015 (the "2013-2015 Plan") and 2014-2016 (the "2014-2016 Plan") stock grant plans in April 2012, April 2013 and April 2014, respectively. The stock grant plans authorized the issuance of stock appreciation rights (2014-2016 Plan only), performance share units and restricted stock units. The awards under these stock grant plans were converted into LivaNova awards pursuant to the terms of the Transaction Agreement as described below. Refer to "Note 3. Business Combinations" for additional details related to the Mergers.

Pursuant to the Transaction Agreement, 3,815,824 stock appreciation rights outstanding (2014-2016 Plan) and 3,365,931 restricted stock units (2013-2015 and 2014-2016 Plans) and performance stock units (2012-2014 Plan) that were unvested immediately prior to the Mergers were accelerated and vested upon the close of the Mergers and were converted into 180,076 LivaNova stock appreciation rights and 158,716 LivaNova ordinary shares, respectively, in a manner designed to preserve the intrinsic value of such awards. The accelerated vesting and share conversion constituted a modification under the authoritative guidance for accounting for stock-based compensation. The modification resulted in $8.8 million of incremental costs on the date of acquisition.

In addition, pursuant to the Transaction Agreement, 2,617,490 unvested performance share units granted under the 2014-2016 Plan and 2013-2015 Plan that were held by Sorin employees upon close of the Mergers were converted into 123,456 LivaNova ordinary shares in a manner designed to preserve the intrinsic value of such awards. For awards not yet earned based on performance achieved as of the date of the Mergers, a service requirement was added to the remaining awards and the performance conditions were removed, resulting in a modification to the award (see below for further details). A portion of the service awards vested on the date of the Mergers and of the remaining awards, 50% vested on February 26, 2016 and 50% vested on February 26, 2017, in each case subject to continued employment. The awards will continue to be governed in accordance with the terms and conditions as were applicable immediately prior to the completion of the Mergers, with the exception of the modified terms pursuant to the Transaction Agreement. The modifications made to the performance share units granted under the 2014-2016 Plan and 2013-2015 Plan constituted modifications under the authoritative guidance for accounting for stock-based compensation. The modification resulted in $8.6 million incremental costs of which $0.9 million was recognized on the acquisition date and the remaining $7.7 million will be recognized over the remaining service period of the awards. We recognized $4.9 million and $1.4 million stock-based compensation expense related to these modifications from the date of the acquisition for the year ended December 31, 2016 and through the transitional period ended December 31, 2015, respectively. We recognized $0.3 million stock-based compensation expense related to these modifications during the year ended December 31, 2017.

Further, pursuant to the Transaction Agreement, 1,721,530 deferred bonus shares held by Sorin employees that were outstanding immediately prior to the Mergers were accelerated and became vested upon the close of the Mergers, and were converted to 81,251 LivaNova ordinary shares in a manner designed to preserve the intrinsic value of such awards. The accelerated vesting and share conversion constituted a modification under the authoritative guidance for accounting for stock-based compensation. This guidance requires the Company to revalue the award upon the transaction close and allocate the revised fair value between consideration paid and post-combination expense based on the ratio of service performed through the transaction date over the total service period of the award. The revised fair value allocated to post-combination services resulted in $0.3 million of incremental costs which was recognized on the acquisition date.

Cyberonics awards exchanged for LivaNova awards

Prior to the Mergers, Cyberonics issued stock options and restricted stock awards under its Amended and Restated New Employee Equity Inducement Plan and 2009 Stock Plan. All of the awards under these plans accelerated and vested as a result of the Mergers. Cyberonics stock options (except as described below) and restricted shares were converted into 813,794 LivaNova share options and 209,043 LivaNova ordinary shares, respectively, in a manner designed to preserve the intrinsic value of such awards. The stock options will continue to become exercisable in accordance with the terms and conditions as were applicable immediately prior to the completion of the Mergers. Additionally, 146,105 Cyberonics stock options held by executive officers that were outstanding immediately prior to the Mergers were settled in cash in the amount of $5.0 million.

LivaNova Stock Plans

On October 16, 2015, the sole shareholder of LivaNova approved the adoption of the Company's 2015 Incentive Award Plan (the "2015 Plan"). The Plan became effective as of October 19, 2015. Incentive awards may be granted under the 2015 Plan in the form of stock options, stock appreciation rights, restricted stock, restricted stock units, other stock-based and cash-based awards and dividend equivalents. As of December 31, 2017, there were approximately 6,115,000 shares available for future grants under the 2015 Plan.

The stock-based compensation tables below include expense and share activity related to discontinued operations.

Stock-Based Compensation

Amounts of stock-based compensation recognized in the consolidated statements of income (loss), by expense category are as follows (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Cost of goods sold	$ 450	$ 709	$ 452	$ 559
Selling, general and administrative	16,118	15,570	15,588	8,357
Research and development	1,119	912	1,664	3,024
Merger-related expense	—	271	13,010	—
Stock-based compensation from continuing operations	17,687	17,462	30,714	11,940
Stock-based compensation from discontinued operations	1,375	2,107	316	—
Total stock-based compensation expense	19,062	19,569	31,030	11,940
Income tax benefit, related to awards, recognized in the consolidated statements of income	4,236	4,645	7,776	3,944
TOTAL EXPENSE, NET OF INCOME TAX BENEFIT	**$ 14,826**	**$ 14,924**	**$ 23,254**	**$ 7,996**

Amounts of stock-based compensation expense recognized in the consolidated statements of income (loss) by type of arrangement are as follows (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Service-based stock appreciation rights ("SARs")	$ 6,916	$ 7,953	$ 10,652	$ 4,317
Service-based restricted stock units ("RSUs")	8,223	9,388	8,204	6,119
Market performance-based restricted stock units	732	31	—	—
Operating performance-based restricted stock units	1,816	90	11,858	1,504
TOTAL STOCK-BASED COMPENSATION EXPENSE FROM CONTINUING OPERATIONS	**$ 17,687**	**$ 17,462**	**$ 30,714**	**$ 11,940**

Unrecognized Stock-Based Compensation

Amounts of stock-based compensation cost not yet recognized related to non-vested awards, including awards assumed or issued, as a result of the Mergers (in thousands):

	December 31, 2017	
	Unrecognized Compensation Cost	Weighted Average Remaining Vesting Period (in years)
Service-based stock appreciation rights	$ 14,628	3.00
Service-based restricted and restricted stock unit awards	20,754	2.67
Performance-based restricted stock and restricted stock unit awards	7,926	3.17
TOTAL STOCK-BASED COMPENSATION COST UNRECOGNIZED	**$ 43,308**	**2.92**

Stock Options and Stock Appreciation Rights

We use the Black-Scholes option pricing methodology to calculate the grant date fair market value of service-based stock option awards and stock appreciation rights. The following table lists the assumptions we utilized as inputs to the Black-Scholes model:

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Dividend yield[1]	—	—	—	—
Risk-free interest rate - based on grant date[2]	1.7% - 2.2%	1.0% - 1.8%	1.2% - 1.4%	1.6% - 2.0%
Expected option term - in years per group of employees/ consultants[3]	4.6 - 5.2	4.0 - 5.0	4.0 - 5.0	4.9 - 6.6
Expected volatility at grant date[4]	29.6% - 30.4%	30.8% - 32.4%	34.1%	31.7% - 41.1%

(1) We have not paid dividends and no future dividends have been approved.
(2) We use yield rates on U.S. Treasury securities for a period that approximated the expected term of the award to estimate the risk-free interest rate.
(3) We estimated the expected term of the awards granted using historic data of actual time elapsed between the date of grant and the exercise or forfeiture of options or SARs for employees. For consultants, the expected term is the remaining time until expiration of the option or SAR.
(4) We determine the expected volatility of the awards based on historical volatility.

The following tables detail the activity for service-based stock option awards and stock appreciation rights, including awards assumed or issued as a result of the Mergers:

Options and SARs	Number of Optioned Shares	Wtd. Avg. Exercise Price per Share	Wtd. Avg. Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)[1]
Outstanding — at December 31, 2016	1,949,328	$ 57.07		
Granted	654,478	56.84		
Exercised	(345,513)	56.60		
Forfeited	(154,381)	59.52		
Expired	(78,790)	58.90		
Outstanding — at December 31, 2017	2,025,122	56.82	6.8	$ 46,796
Fully vested and exercisable — end of year	944,051	58.37	4.2	$ 20,342
Fully vested and expected to vest — end of year[2]	1,990,317	$ 56.82	6.7	$ 45,989

(1) The aggregate intrinsic value of options and SARs is based on the difference between the fair market value of the underlying stock at December 31, 2017, using the market closing stock price, and exercise price for in-the-money awards.
(2) Factors in expected future forfeitures.

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Weighted average grant date fair value of stock option awards and SARs granted during the year / period (per share)[1]	$ 17.19	$ 15.03	$ 21.05	$ 18.64
Aggregate intrinsic value of stock option and SARs exercised during the year / period (in thousands)	$ 5,462	$ 5,033	$ 5,464	$ 3,973

(1) Including weighted average Mergers date fair value of SARs assumed in the Mergers.

Restricted Stock and Restricted Stock Units Awards

The following tables detail the activity for service-based restricted stock and restricted stock unit awards, including activity from restricted stock units assumed or issued as a result of the Mergers:

	Number of Shares	Wtd. Avg. Grant Date Fair Value
Non-vested shares at December 31, 2016	506,219	$ 56.56
Granted	131,442	61.37
Vested	(169,580)	59.09
Forfeited	(87,973)	56.68
NON-VESTED SHARES AT DECEMBER 31, 2017	**380,108**	$ 57.07

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Weighted average grant date fair value of service-based share grants issued during the year / period (per share)	$ 61.37	$ 55.53	$ 57.55	$ 56.85
Aggregate fair value of service-based share grants that vested during the year / period (in thousands)	$ 9,966	$ 4,810	$ 24,384	$ 9,194

The following tables detail the activity for performance-based and market-based restricted stock and restricted stock unit awards:

	Number of Shares	Wtd. Avg. Grant Date Fair Value
Non-vested shares at December 31, 2016	52,083	$ 42.01
Granted	346,584	$ 42.11
Vested	(2,171)	$ 57.60
Forfeited	(55,109)	$ 42.73
NON-VESTED SHARES AT DECEMBER 31, 2017	**341,387**	

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Weighted average grant date fair value of performance-based share grants issued during the year / period (per share)	$ 42.11	$ 42.01	$ —	$ 57.39
Aggregate fair value of performance-based share grants that vested during the year / period (in thousands)	$ 110	$ —	$ 9,648	$ 10,519

Note 15 Employee Retirement Plans

Prior to the Mergers, Cyberonics did not sponsor any defined benefit pension plans. As a result of the Mergers, we assumed several defined benefit pension plans which include plans in the U.S., Italy, Germany, Japan and France. We maintain a frozen cash balance retirement plan in the U.S., that is a contributory, defined benefit plan designed to provide the benefit in terms of a stated account balance dependent on the employer's promised interest-crediting rate. In Italy and France we maintain a severance pay defined benefit plan that obligates the employer to pay a severance payment in case of resignation, dismissal or retirement. In other jurisdictions we sponsor non-contributory, defined benefit plans designated to provide a guaranteed minimum retirement benefits to eligible employees.

We carried forward Cyberonics's defined contribution plans after the Mergers, including the Cyberonics, Inc. Employee Retirement Savings Plan, which qualifies under Section 401(k) of the IRC, covering U.S. employees, the Cyberonics, Inc. Non-Qualified Deferred Compensation Plan (the "Deferred Compensation"), covering certain U.S. middle and senior management and the Belgium Defined Contribution Pension Plan for Cyberonics's Belgium employees.

The expense related to these plans was $10.2 million and $11.6 million for the years ended December 31, 2017 and December 31, 2016, respectively, $2.9 million for the transitional period from April 25, 2015 to December 31, 2015 and $1.8 million for the fiscal year ended April 24, 2015.

The change in benefit obligations and funded status of our U.S. pension benefits (in thousands):

	U.S. Pension Benefits		
	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period Ended December 31, 2015
ACCUMULATED BENEFIT OBLIGATIONS AT YEAR END:	**$ 11,191**	**$ 10,615**	**$ 10,218**
Change in projected benefit obligation:			
Projected benefit obligation at beginning of year	$ 10,425	$ 10,218	$ –
Interest cost	361	367	86
Benefits obligations assumed in the Mergers	–	–	10,378
Plan curtailments and settlements	–	(609)	(59)
Actuarial (gain) loss	770	698	(40)
Benefits paid	(555)	(249)	(147)
PROJECTED BENEFIT OBLIGATION AT END OF YEAR	**$ 11,001**	**$ 10,425**	**$ 10,218**
Change in plan assets:			
Fair value of plan assets at beginning of year	$ 5,925	$ 5,858	$ –
Actual return on plan assets	444	277	(33)
Plan assets acquired in the Mergers	–	–	6,097
Employer contributions	870	648	–
Plan settlements	–	(609)	(59)
Benefits paid	(360)	(249)	(147)
FAIR VALUE OF PLAN ASSETS AT END OF YEAR	**$ 6,879**	**$ 5,925**	**$ 5,858**
Funded status at end of year:			
Fair value of plan assets	$ 6,879	$ 5,925	$ 5,858
Projected Benefit obligations	11,001	10,425	10,218
Underfunded status of the plans	4,122	4,500	4,360
RECOGNIZED LIABILITY	**$ 4,122**	**$ 4,500**	**$ 4,360**
Amounts recognized on the consolidated balance sheets consist of:			
Non-current liabilities	$ 4,122	$ 4,500	$ 4,360
RECOGNIZED LIABILITY	**$ 4,122**	**$ 4,500**	**$ 4,360**

The change in benefit obligations and funded status of our non-U.S. pension benefits (in thousands):

	Non-U.S. Pension Benefits		
	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period Ended December 31, 2015
ACCUMULATED BENEFIT OBLIGATIONS AT YEAR END:	**$ 23,785**	**$ 27,845**	**$ 21,116**
Change in projected benefit obligation:			
Projected benefit obligation at beginning of year	$ 20,402	$ 21,116	$ –
Service cost	503	397	92
Interest cost	291	376	83
Benefits obligations assumed in the Mergers	–	–	20,626
Employee contributions	–	–	–
Plan curtailments and settlements[1]	–	(20)	–
Actuarial (gain) loss	(27)	889	152
Benefits paid	(2,222)	(1,911)	(201)
Foreign currency exchange rate changes and other	2,601	(445)	364
PROJECTED BENEFIT OBLIGATION AT END OF YEAR	**$ 21,548**	**$ 20,402**	**$ 21,116**
Change in plan assets:			
Fair value of plan assets at beginning of year	$ 2,898	$ 2,689	$ –
Actual return on plan assets	54	28	6
Plan assets acquired in the Mergers	–	–	2,607
Employer contributions	369	–	81
Employee contributions	–	358	–
Plan settlements	–	–	–
Benefits paid	(393)	(238)	(5)
Foreign currency exchange rate changes	147	61	–
FAIR VALUE OF PLAN ASSETS AT END OF YEAR	**$ 3,075**	**$ 2,898**	**$ 2,689**
Reclassification of net obligation to Current liabilities of discontinued operations	–	–	–
Funded status at end of year:			
Fair value of plan assets	$ 3,075	$ 2,898	$ 2,689
Projected Benefit obligations	21,548	20,402	21,116
Underfunded status of the plans[2]	18,473	17,504	18,427
RECOGNIZED LIABILITY	**$ 18,473**	**$ 17,504**	**$ 18,427**
Amounts recognized on the consolidated balance sheets consist of:			
Non-current assets	$ –	$ –	$ –
Current liabilities	–	–	–
Non-current liabilities	18,473	17,504	18,427
RECOGNIZED LIABILITY	**$ 18,473**	**$ 17,504**	**$ 18,427**

(1) Benefits to be accumulated in future periods in our French defined benefit plan were curtailed due to our Meylan, French facility restructuring.
(2) In certain non-U.S. countries fully funding pension plans is not a common practice. Consequently, certain pension plans have been partially funded.

Defined Benefit Plan Net Periodic Benefit Cost

The net periodic benefit cost of the defined benefit pension plans includes the following components (in thousands):

	U.S. Pension Benefits		
	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period Ended December 31, 2015
Interest cost	$ 361	$ 367	$ 86
Expected return on plan assets	(282)	(277)	(77)
Settlement and curtailment loss (gains)	–	259	282
Amortization of net actuarial loss	527	439	96
NET PERIODIC BENEFIT COST	**$ 606**	**$ 788**	**$ 387**

	Non-U.S. Pension Benefits		
	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period Ended December 31, 2015
Service cost	$ 503	$ 397	$ 92
Interest cost	291	376	83
Expected return on plan assets	(54)	(28)	–
Settlement and curtailment loss (gains)	–	(20)	–
Amortization of net actuarial loss	(27)	889	–
NET PERIODIC BENEFIT COST	**$ 713**	**$ 1,614**	**$ 175**

To determine the discount rate for our U.S. benefit plan, we used the Citigroup Above-median yield curve. For the discount rate used for the other non-U.S. benefit plans we consider local market expectations of long-term returns. The resulting discount rates are consistent with the duration of plan liabilities. The expected long-term rate of return on plan assets assumptions are determined using a building block approach, considering historical averages and real returns of each asset class. In certain countries, where historical returns are not meaningful, consideration is given to local market expectations of long-term returns.

Major actuarial assumptions used in determining the benefit obligations and net periodic benefit cost for our significant U.S. benefit plans are presented in the following table:

	U.S. Pension Benefits		
	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period Ended December 31, 2015
Actuarial assumptions used to determine benefit obligation and net periodic benefit cost:			
Discount rate	3.28%	3.63%	3.79%
Actuarial assumptions used to determine net periodic benefit cost:			
Discount rate	3.63%	3.04% - 3.79%	3.64%
Expected return on plan assets	**5.00%**	**5.00%**	**5.00%**

Major actuarial assumptions used in determining the benefit obligations and net periodic benefit cost for our significant non-U.S. benefit plans are presented in the following table:

	Non-U.S. Pension Benefits		
	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period Ended December 31, 2015
Actuarial assumptions used to determine benefit obligation and net periodic benefit cost:			
Discount rate	0.27% - 2.73%	0.27% - 1.50%	0.48% - 2.00%
Rate of compensation increase	2.50% - 3.00%	2.50% - 3.89%	2.50% - 3.89%

Retirement Benefit Plan Investment Strategy

In the U.S., we have an account that holds the defined benefit frozen balance pension plan assets. The Qualified Plan Committee (the "Plan Committee") sets investment guidelines for U.S. pension plans. The plan assets in the U.S. are invested in accordance with sound investment practices that emphasize long-term fundamentals. The investment objectives for the plan assets in the U.S. are to achieve a positive rate of return that would be expected to close the current funding deficit and so enable us to terminate the frozen pension plan at a reasonable cost. The Plan Committee also oversees the investment allocation process, selects the investment managers, and monitors asset performance. The investment portfolio contains a diversified portfolio of fixed income and equity index funds. Securities are also diversified in terms of domestic and international securities, short- and long-term securities, growth and value styles, large cap and small cap stocks.

Outside the U.S., pension plan assets are typically managed by decentralized fiduciary committees. There is a significant variation in policy asset allocation from country to country. Local regulations, local funding rules, and local financial and tax considerations are part of the funding and investment allocation process in each country.

Our U.S. pension plan target allocations by asset category:

	U.S. Pension Benefits as of December 31, 2017
Equity securities	27%
Debt securities	63%
Other	10%

Retirement Benefit Fair Values

The following is a description of the valuation methodologies used for retirement benefit plan assets measured at fair value:

Equity Mutual Funds

Valued based on the year-end net asset values of the investment vehicles. The net asset values of the investment vehicles are based on the fair values of the underlying investments of the partnerships valued at the closing price reported in the active markets in which the individual security is traded. Equity mutual funds have a daily reported net asset value.

Fixed Income Mutual Funds

Valued based on the year-end net asset values of the investment vehicles. The net asset values of the investment vehicles are based on the fair values of the underlying investments of the partnerships valued based on inputs other than quoted prices that are observable.

Money Markets

Valued based on quoted prices in active markets for identical assets.

The following tables provide information by level for the retirement benefit plan assets that are measured at fair value, as defined by U.S. GAAP (in thousands):

	Fair Value as of December 31, 2017	Fair Value Measurement Using Inputs Considered as: Level 1	Level 2	Level 3
Equity mutual funds	$ 1,879	$ —	$ 1,879	$ —
Fixed income mutual funds	4,334	—	4,334	—
Money market funds	666	666	—	—
	$ 6,879	**$ 666**	**$ 6,213**	**$ —**

	Fair Value as of December 31, 2016	Fair Value Measurement Using Inputs Considered as: Level 1	Level 2	Level 3
Equity mutual funds	$ 1,660	$ —	$ 1,660	$ —
Fixed income mutual funds	4,041	—	4,041	—
Money market funds	224	224	—	—
	$ 5,925	**$ 224**	**$ 5,701**	**$ —**

Refer to "Note 2. Basis of Presentation, Use of Accounting Estimates and Significant Accounting Policies" for discussion of the fair value measurement terms of Levels 1, 2, and 3.

Defined Benefit Retirement Funding

We make the minimum required contribution to fund the U.S. pension plan as determined by MAP - 21 and the Highway and Transportation Funding Act of 2014 ("HAFTA"). We contributed $1.2 million and $0.6 million to the pension plans (U.S. and non-U.S.) during the years ended December 31, 2017 and December 31, 2016, respectively. During the transitional period April 25, 2015 to December 31, 2015, we did not make a material contribution to the U.S. or non-U.S. pension plans. We anticipate that we will make contributions to the U.S. pension plan of approximately $0.9 million during the year ended December 31, 2018.

Benefit payments, including amounts to be paid from our assets, and reflecting expected future service, as appropriate, are expected to be paid as follows (in thousands):

	U.S. Plans	Non-U.S. Plans
2018	$ 1,965	$ 1,670
2019	622	801
2020	1,034	1,019
2021	780	911
2022	1,033	1,085
Thereafter	$ 5,757	$ 16,062

Severance Indemnity

In Italy, upon termination of employment for any reason, employers are required to pay a termination indemnity (*Trattamento di fine Rapporto* or "TFR") to all employees as required by Italian Civil Code. In Italy, the TFR serves as a backup in the event of redundancy or as an additional pension benefit after retirement. The TFR is considered a defined contribution plan with respect to amounts vesting as of January 1, 2007 for employees who have opted for supplementary pensions or who have chosen to maintain the TFR at the company, for companies with more than 50 employees. We have incurred expenses related to the Italian TFR of approximately $0.4 million and $1.1 million for the years ended December 31, 2017 and December 31, 2016, respectively, and $1.3 million for the transitional period April 25, 2015 to December 31, 2015.

Defined Contribution Plans

We incurred expenses for our defined contribution plans of $7.8 million and $10.0 million for the years ended December 31, 2017 and December 31, 2016, respectively, and $2.9 million for the transitional period April 25, 2015 to December 31, 2015.

Note 16 Income Taxes

Earnings Before Income Taxes and Components of Income Tax Expense

The U.S. and non-U.S. components of income (loss) from continuing operations before income taxes and our income tax provision (benefit) from continuing operations are as follows (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Income (loss) from continuing operations before income taxes:				
UK and Non-United States	$ 71,980	$ (36,997)	$ (27,491)	$ 2,020
United States	49,158	62,663	1,493	87,274
	$ 121,138	**$ 25,666**	**$ (25,998)**	**$ 89,294**
Total income tax provision (benefit) from continuing operations consisted of the following:				
Current:				
UK and Non-United States	$ 12,771	$ 13,876	$ 2,454	$ 1,065
United States	26,743	19,706	23,544	21,104
	$ 39,514	**$ 33,582**	**$ 25,998**	**$ 22,169**
Deferred:				
UK and Non-United States	$ (4,140)	$ (28,607)	$ (18,690)	$ 834
United States	14,580	138	(20,809)	8,443
	$ 10,440	$ (28,469)	$ (39,499)	$ 9,277
TOTAL PROVISION FOR INCOME TAX EXPENSE (BENEFIT) FROM CONTINUING OPERATIONS	**$ 49,954**	**$ 5,113**	**$ (13,501)**	**$ 31,446**

Effective Income Tax Rate Reconciliation

The following is a reconciliation of the statutory income tax rate to our effective income tax rate expressed as a percentage of income from continuing operations before income taxes:

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Statutory tax rate at U.S. Rate	—%	—%	—%	35.0%
Statutory tax rate at U.K. Rate	19.0	20.0	19.1	—
Effect of changes in tax rate	(19.9)	(0.2)	(12.9)	—
Deferred tax valuation allowance	10.6	5.1	12.6	—
Transaction costs[1]	2.0	10.2	(20.9)	—
Sale of Intellectual Property	44.3	17.6	—	—
U.S. state and local tax provision, net of federal benefit	1.2	7.9	—	2.7
Foreign tax rate differential	10.7	101.5	37.5	1.5
Notional interest deduction	(13.5)	(68.4)	12.0	—
U.S. Subpart F	1.5	7.9	(7.6)	
Research and development tax credits	(1.6)	(4.0)	6.0	(2.1)
Distribution of subsidiary earnings	(0.3)	(55.1)	—	—
Reserve for uncertain tax positions	1.2	8.4	—	—
Domestic manufacturing deduction	(1.8)	(2.8)	3.0	—
Tax on UK CFC interest pick-up	—	1.3	—	—
Write-off/impairment of investments	(14.8)	(30.3)	(0.9)	—
Other, net	2.6	0.8	4.0	(1.9)
EFFECTIVE TAX RATE	**41.2%**	**19.9%**	**51.9%**	**35.2%**

(1) Included in transitional period April 25, 2015 to December 31, 2015 is the reversal of the deferred tax asset established during the fiscal year ended April 24, 2015 based on the assumption that these otherwise non-deductible transaction costs would be deductible if the business combination was not consummated. Because the transaction was ultimately consummated, the deferred tax asset was reversed as a non-deductible transaction cost in the amount of $2.3 million.

U.S. Tax Reform

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (the "Act"). The Act, which is also commonly referred to as "U.S. tax reform", significantly changes U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21% commencing in 2018. In addition, the Act created a one-time mandatory tax, a toll charge, on previously deferred foreign earnings of non-U.S. subsidiaries controlled by a U.S. corporation, or in our case, a non-U.S. subsidiary controlled by one of our U.S. subsidiaries. We recorded no toll charge for the year ended December 31, 2017 as we had no previously deferred foreign earnings of U.S. controlled foreign subsidiaries as of the measurement dates. As a result of the Act, we recorded a non-cash net charge of $27.5 million during the fourth quarter of 2017, which is included in "Income tax expense (benefit)" in the consolidated statement of (loss) income. This amount primarily consists of two components: (i) $12.8 million relating to the impairment of foreign tax credits, and (ii) a net $14.7 million charge resulting from the remeasurement of our deferred tax assets and liabilities in the U.S. based on a change in the corporate income tax rate.

Further regulations and notices and state conformity could be issued as a result of U.S. tax reform covering various issues that may affect our tax position including, but not limited to, an increase in the corporate state tax rate and elimination of the interest deduction. The content of any future legislation, the timing for regulations, notices, and state conformity, and the reporting periods that would be impacted cannot be determined at this time. Although we believe the net charge of $27.5 million is a reasonable estimate of the impact of the income tax effects of the Act on us as of December 31, 2017, the estimate is provisional. Once we finalize certain tax positions for our 2017 U.S. consolidated tax return, we will be able to conclude whether any further adjustments to our tax positions are required.

Deferred Income Tax Assets and Liabilities

Significant components of our deferred tax assets and liabilities, including amounts related to discontinued operations, are as follows, (in thousands):

	December 31, 2017	December 31, 2016
Deferred tax assets:		
Net operating loss carryforwards	$ 132,615	$ 131,904
Tax credit carryforwards	18,585	17,242
Deferred compensation	4,697	6,521
Accruals and reserves	27,146	28,520
Inventory	2,759	4,441
Investments	3,858	—
Other	3,310	10,306
Gross deferred tax assets	192,970	198,934
Valuation allowance	(93,333)	(36,277)
Total deferred tax assets	99,637	162,657
Deferred tax liabilities:		
Gain on sale of intellectual property	(75,624)	(136,117)
Investments	(3,135)	(12,553)
Property, equipment & intangible assets	(137,031)	(164,090)
Other	(1,181)	(16,421)
Gross deferred tax liabilities:	(216,971)	(329,181)
TOTAL DEFERRED TAX (LIABILITIES) ASSETS, NET	**$ (117,334)**	**$ (166,524)**
Reported in the consolidated balance sheet as (after valuation allowance and jurisdictional netting):		
Net deferred tax asset	$ 14,076	$ 6,017
Deferred tax liability	(131,410)	(172,541)
NET DEFERRED TAX (LIABILITIES) ASSETS	**$ (117,334)**	**$ (166,524)**

Refer to "Note 4. Discontinued Operations" for the amounts of deferred tax assets and liabilities included in the above schedule related to discontinued operations. Valuation allowance related to discontinued operations included in the schedule above was $48.7 million and $26.8 million for the years ended December 31, 2017 and December 31, 2016, respectively.

We remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future. However, we are still analyzing certain aspects of the Act and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts.

We utilized $2.5 million and $5.3 million of U.S. capital loss carryforward for the years ended December 31, 2017 and December 31, 2016, respectively. We have $12.8 million of foreign tax credits in the U.S., $3.4 million of U.S. State tax credits and $2.4 million of other credits.

Net Operating Loss Carryforwards

We had the following net operating loss ("NOL") carryforwards as of December 31, 2017, which can be used to reduce our income tax payable in future years (in thousands):

Region	Gross Amount	Gross Amount with No Expiration	With Expiration	Starting Expiration Year
Europe	$ 153,350	$ 141,774	$ 11,576	2022
South America	14,815	14,815	—	n/a
U.S. Federal	134,415	—	134,415	2021
U.S. State	106,555	—	106,555	2018
Far East	12,174	—	12,174	2018

As of December 31, 2017, we had a valuation allowance of $93.3 million, which includes $48.7 million related to discontinued operations and $44.6 million primarily related to net operating losses in certain jurisdictions and U.S. foreign tax credits.

As of December 31, 2016, we had a valuation allowance of $51.5 million, primarily related to net operating losses acquired in the Merger. As a result of the business combination during the transitional period April 25, 2015 to December 31, 2015, the historic NOL's of Sorin U.S. are limited by IRC section 382. The annual limitation is approximately $14.2 million, which is sufficient to absorb the U.S. net operating losses prior to their expiration. Thus no additional valuation allowance has been recorded.

In 2016, we consolidated certain of our intangible assets into an entity organized under the laws of England and Wales. Because the intangible assets were sold and purchased inter-company, the tax expense on the inter-company gain was deferred, and will be amortized to current income tax expense in the consolidated statement of net (loss) income over an eight year period, which represents the estimated useful life of the intangible assets that were consolidated into the U.K. entity. Approximately $19.4 million and $11.6 million were amortized to current income tax expense during the year ended December 31, 2017 and December 31, 2016, respectively. The amount of tax to be paid over the eight years is not fixed and we remeasured the unamortized balance on December 22, 2017 as a result of U.S. tax reform. The tax asset is included in 'Prepaid expenses and other current assets' and 'Other assets' in the consolidated balance sheet as of December 31, 2017, in the amount of $12.6 million and $68.1 million, respectively. The cash taxes expected to be paid on the inter-company gain were remeasured on December 22, 2017 as a result of U.S. tax reform and is recorded as a deferred tax liability and reclassified to income taxes payable as cash taxes become payable. As of December 31, 2017, the current income tax payable and the deferred income tax liability associated with the intercompany gain was $19.4 million and $75.6 million, respectively.

A significant portion of the net deferred tax liability worldwide included above relates to the tax effect of the step-up in value of the assets acquired in the combination with Sorin. Refer to "Note 3. Business Combinations" for additional information.

No provision has been made for income taxes on undistributed earnings of foreign subsidiaries as of December 31, 2017 because it is our intention to indefinitely reinvest undistributed earnings of our foreign subsidiaries. In the event of the distribution of those earnings in the form of dividends, a sale of the subsidiaries, or certain other transactions, we may be liable for income taxes. There should be no material tax liability on future distributions as most jurisdictions with undistributed earnings have various participation exemptions / no withholding tax. As of December 31, 2017, it was not practicable to determine the amount of the deferred income tax liability related to those investments.

Uncertain Income Tax Positions

The following is a roll-forward of our total gross unrecognized tax benefit (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016
Balance at beginning of year	$ 22,374	$ 20,224
Tax positions related to current year	324	—
Tax positions related to prior year	1,153	2,548
Impact of foreign currency exchange rates	2,286	(398)
BALANCE AT END OF YEAR	**$ 26,137**	**$ 22,374**

Unrecognized tax benefits of $12.2 million and $10.7 million at December 31, 2017 and 2016, respectively, included in the table above are presented in the balance sheet as a reduction to the related deferred tax assets for net operating loss carryforwards.

Accrued interest and penalties totaled $8.0 million and $6.3 million as of December 31, 2017 and 2016, respectively, and were included in Other long-term liabilities on our consolidated balance sheets.

During the fiscal year ended April 24, 2015, based upon our review and rework of certain prior-year R&D tax credits, we believe that the credits are more likely than not to be sustained upon examination and as a result we released the reserve against these R&D tax credits.

Tax authorities may disagree with certain positions we have taken and assess additional taxes. We regularly assess the likely outcomes of our tax positions in order to determine the appropriateness of our reserves for uncertain tax positions. However, there can be no assurance that we will accurately predict the outcome of these audits and the actual outcome of an audit could have a material impact on our consolidated results of income, financial position or cash flows. If all of our unrecognized tax benefits as of December 31, 2017 were recognized, $22.8 million would impact our effective tax rate. We are unable to estimate the amount of change in the majority of our unrecognized tax benefits over the next 12 months. Refer to "Note 12. Commitments and Contingencies" for additional information regarding the status of current tax litigation.

We record accrued interest and penalties related to unrecognized tax benefits in 'Interest expense' and 'Foreign exchange and other gains (losses)', respectively, in the consolidated statements of income (loss).

On October 26, 2017, the European Commission ("EC") announced that an investigation will be opened with respect to the UK's controlled foreign company ("CFC") rules. The CFC rules under investigation provide certain tax exceptions to entities controlled by UK parent companies that are subject to lower tax rates if the activities being undertaken by the CFC relate to financing. The EC is investigating whether the exemption is a breach of EU State Aid rules. The investigation is in its early stages and is unlikely to be completed within the next twelve months with an appeal process likely to follow. It is unclear as to whether the UK will be part of the EU once a decision has been finalized due to Brexit and what impact, if any, Brexit will have on the outcome of the investigation or the enforceability of a decision. Due to the many uncertainties related to this matter, including the preliminary state of the investigation, the pending Brexit negotiations and political environment and the unknown outcome of the investigation and resulting appeals, no uncertain tax position reserve has been recognized related to this matter and we are unable to reasonably estimate the potential liability for this matter.

LivaNova PLC is domiciled and resident in the UK. Our subsidiaries conduct operations and earn income in numerous countries and are subject to the laws of taxing jurisdictions within those countries, and the income tax rates imposed in the tax jurisdictions in which our subsidiaries conduct operations vary. As a result of the changes in the overall level of our income, the deployment of various tax strategies and the changes in tax laws, our consolidated effective income tax rate may vary from one reporting period to another.

The major jurisdictions where we are subject to income tax examinations are as follows:

Jurisdiction	Earliest Year Open
U.S. - federal and state	1992
Italy	2012
Germany	2010
England and Wales	2013
Canada	2013

In April 2016, the U.S. Internal Revenue Service ("IRS") and U.S. Treasury Department issued new rules that materially change the manner in which the determination is made as to whether the U.S. anti-inversion rules under Section 7874 will apply. The new rules have the effect of linking with the Mergers certain future acquisitions of U.S. businesses made in exchange for LivaNova equity, and such linkage may impact LivaNova's ability to engage in particular acquisition strategies. For example, the new temporary regulations would impact certain acquisitions of U.S. companies in an exchange for stock in LivaNova during the 36 month period beginning October 19, 2015 by excluding from the Section 7874 calculations the portion of shares of LivaNova that are allocable to the legacy Cyberonics shareholders. This new rule would generally have the effect of increasing the otherwise applicable Section 7874 fraction with respect to future acquisitions of a U.S. business, thereby increasing the risk that such acquisition could cause LivaNova to be treated as a U.S. corporation for U.S. federal income tax purposes.

On October 13, 2016, the U.S. IRS and U.S. Treasury Department released final and temporary regulations under section 385. In response to comments, the final regulations significantly narrow the scope of the proposed regulations previously issued on April 4, 2016. Like the proposed regulations, the final regulations establish extensive documentation requirements that must be satisfied for a debt instrument to constitute debt for U.S. federal tax purposes and re-characterizes a debt instrument as stock if the instrument is issued in one of a number of specified transactions. Moreover, while these new rules are not retroactive, they will impact our future intercompany transactions and our ability to engage in future restructuring.

Executive Order 13789, issued in April 2017, ordered the US Treasury to examine tax regulations for excessive cost, complexity or whether such regulation exceeded IRS's statutory authority, which included IRC Sec. 385.

Note 17 Income (Loss) Per Share

The following table sets forth the computation of basic and diluted net (loss) income per share or share of common stock, (in thousands except per share data):

	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Numerator:				
Net income (loss) from continuing operations	$ 54,465	$ 1,874	$ (14,720)	$ 57,848
Net loss from discontinued operations	(79,554)	(64,663)	(14,893)	—
NET (LOSS) INCOME	**$ (25,089)**	**$ (62,789)**	**$ (29,613)**	**$ 57,848**
Denominator:				
Basic weighted average shares outstanding	48,157	48,860	32,741	26,391
Add effects of stock-based compensation instruments[1]	344	154	—	235
DILUTED WEIGHTED AVERAGE SHARES OUTSTANDING	**48,501**	**49,014**	**32,741**	**26,626**
Basic income (loss) per share:				
Continuing operations	$ 1.13	$ 0.04	$ (0.45)	$ 2.19
Discontinued operations	(1.65)	(1.33)	(0.45)	—
	$ (0.52)	**$ (1.29)**	**$ (0.90)**	**$ 2.19**
Diluted income (loss) per share:				
Continuing operations	$ 1.12	$ 0.04	$ (0.45)	$ 2.17
Discontinued operations	(1.64)	(1.32)	(0.45)	—
	$ (0.52)	**$ (1.28)**	**$ (0.90)**	**$ 2.17**

(1) Excluded from the computation of diluted earnings per share for the year ended December 31, 2017 were stock options, SARs and restricted share units outstanding at December 31, 2017 to purchase 24 thousand shares because to include them would have been anti-dilutive. Excluded from the computation of diluted earnings per share for the year ended December 31, 2016 were stock options, SARs and restricted share units outstanding at December 31, 2016 to purchase 1.6 million shares because to include them would have been anti-dilutive. Excluded from the computation of diluted earnings per share for the transitional period April 25, 2015 to December 31, 2015, were stock options, SARs and restricted share units outstanding at December 31, 2015 to purchase 1.6 million shares because to include them would have been anti-dilutive due to the net loss. Excluded from the computation of diluted earnings per share for the fiscal year ended April 24, 2015 were stock options, SARs and restricted shares and restricted share units outstanding at April 24, 2015 to purchase 281 thousand common shares of Cyberonics because to include them would have been anti-dilutive.

Note 18 Geographic and Segment Information

Segment Information

We identify operating segments based on the way we manage, evaluate and internally report our business activities for purposes of allocating resources and assessing performance. We have two reportable segments: Cardiac Surgery and Neuromodulation.

The Cardiac Surgery segment generates its revenue from the development, production and sale of cardiovascular surgery products. Cardiac Surgery products include oxygenators, heart-lung machines, autotransfusion systems, mechanical heart valves and tissue heart valves.

The Neuromodulation segment generates its revenue from the design, development and marketing of neuromodulation therapy for the treatment of drug-resistant epilepsy and treatment resistant depression. Neuromodulation products include the VNS Therapy System, which consists of an implantable pulse generator, a lead that connects the generator to the vagus nerve, surgical equipment to assist with the implant procedure, equipment to enable the treating physician to set the pulse generator stimulation parameters for the patient, instruction manuals and magnets to suspend or induce stimulation manually.

"Other" includes corporate shared service expenses for finance, legal, human resources and information technology and corporate business development ("New Ventures"). New Ventures is focused on new growth platforms and identification of other opportunities for expansion.

Net sales of our reportable segments include revenues from the sale of products they each develop and manufacture or distribute. We define segment income as operating income before merger and integration, restructuring, amortization and litigation settlement.

Net sales and operating income (loss) by segment are as follows (in thousands):

Net Sales	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	April 24, 2015
Cardiac Surgery	$ 635,517	$ 611,715	$ 147,635	$ –
Neuromodulation	374,976	351,406	214,761	291,558
Other	1,784	1,737	841	–
TOTAL NET SALES	**$ 1,012,277**	**$ 964,858**	**$ 363,237**	**$ 291,558**

Operating Income (Loss) From Continuing Operations:	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Cardiac Surgery (including product remediation)	$ 81,001	$ 16,578	$ 13,091	$ –
Neuromodulation	188,352	174,579	87,616	97,344
Other	(107,955)	(70,925)	(39,815)	–
Total reportable segment income from continuing operations	161,398	120,232	60,892	97,344
Merger and integration expenses	15,528	20,377	55,776	8,692
Restructuring expenses	17,056	37,377	10,494	–
Amortization of intangibles	33,144	31,035	7,030	–
OPERATING INCOME (LOSS) FROM CONTINUING OPERATIONS	**$ 95,670**	**$ 31,443**	**$ (12,408)**	**$ 88,652**

Assets by reportable segment (in thousands):

Assets:	December 31, 2017	December 31, 2016
Cardiac Surgery	$ 1,386,032	$ 1,277,799
Neuromodulation	533,067	611,085
Other	334,103	133,825
Discontinued operations	250,689	319,922
TOTAL ASSETS	**$ 2,503,891**	**$ 2,342,631**

Capital expenditures by segment (in thousands):

Capital Expenditures:	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
Cardiac Surgery	$ 18,985	$ 21,190	$ 10,402	$ –
Neuromodulation	2,504	8,098	1,418	6,687
Other	7,010	5,265	512	–
Discontinued operations	5,608	3,809	4,954	–
TOTAL	**$ 34,107**	**$ 38,362**	**$ 17,286**	**$ 6,687**

Geographic Information

We operate under three geographic regions: United States, Europe, and Rest of world.

Net sales to external customers by geography are determined based on the country the products are shipped to and are as follows: (in thousands):

Net sales:	Year Ended December 31, 2017	Year Ended December 31, 2016	Transitional Period April 25, 2015 to December 31, 2015	Fiscal Year Ended April 24, 2015
United States	$ 494,724	$ 480,558	$ 229,724	$ 235,712
Europe[1] [2]	210,470	204,846	61,595	41,484
Rest of world	307,083	279,454	71,918	14,362
TOTAL[3]	**$ 1,012,277**	**$ 964,858**	**$ 363,237**	**$ 291,558**

(1) *Net sales to external customers includes $30.8 million, $37.3 million and $14.3 million in the United Kingdom, our country of domicile, for the years ended December 31, 2017, December 31, 2016 and the transitional period April 25, 2015 to December 31, 2015, respectively. Prior to the Mergers, we were domiciled in the United States.*

(2) *Europe sales include those countries in which we have a direct sales presence, whereas European countries in which we sell through distributors are included in 'Rest of world'.*

(3) *No single customer represented over 10% of our consolidated net sales and no country's net sales exceeded 10% of our consolidated sales except for the U.S.*

Property, plant, and equipment, net by geography are as follows (in thousands):

PP&E	December 31, 2017	December 31, 2016
United States	$ 62,154	$ 61,071
Europe	119,133	111,735
Rest of world	11,072	30,902
TOTAL	**$ 192,359**	**$ 203,708**

Note 19 Supplemental Financial Information

Accounts receivable, net consisted of the following (in thousands):

	December 31, 2017	December 31, 2016
Trade receivables from third parties	$ 288,127	$ 216,993
Allowance for bad debt	(5,982)	(3,737)
	$ 282,145	**$ 213,256**

Our customers consist of hospitals, other healthcare institutions, distributors, organized purchase groups and government and private entities. Actual collection periods for trade receivables vary significantly as a function of the nature of the customer (e.g., government or private) and its geographic location.

Inventories consisted of the following (in thousands):

	December 31, 2017	December 31, 2016
Raw materials	$ 39,810	$ 37,243
Work-in-process	18,206	17,474
Finished goods	86,454	78,300
	$ 144,470	**$ 133,017**

Inventories are reported net of the provision for obsolescence. The provisions, which reflects normal obsolescence and includes components that are phased out or expired, totaled $10.5 million and $7.2 million, at December 31, 2017 and December 31, 2016, respectively.

Prepaid expenses and other current assets consisted of the following (in thousands):

	December 31, 2017	December 31, 2016
Prepaid expenses	$ 13,905	$ 8,657
Income taxes payable on inter-company transfers of property[1]	12,604	19,445
Earthquake grant receivable	4,064	4,748
Deposits and advances to suppliers	4,551	3,440
Escrow deposit - Caisson	2,000	–
Current loans and notes receivable	1,395	7,093
Derivative contract assets	518	8,269
	$ 39,037	**$ 51,652**

(1) The income taxes payable on intercompany transfers of property asset is the asset account created to defer the income tax effect of an intercompany intellectual property sale pursuant to ASC 810-10-45-8.

PP&E detail (in thousands):	December 31, 2017	December 31, 2016	Lives in Years
Land	$ 16,293	$ 14,420	
Building and building improvements	80,280	92,092	3 to 50
Equipment, software, furniture and fixtures	182,968	152,864	3 to 20
Other	6,082	1,296	3 to 10
Capital investment in process	9,944	15,009	
Total	295,567	275,681	
Accumulated depreciation	(103,208)	(71,973)	
NET	**$ 192,359**	**$ 203,708**	

During 2017, we initiated a plan to sell our Suzhou Industrial Park facility in Shanghai, China and as a result of this exit plan we recorded impairments of the building and equipment of $5.4 million, which were recorded in 'Restructuring expenses' in the consolidated statement of net (loss) income. In addition, we classified the remaining carrying value of the land, building and equipment of our Suzhou facility, of $13.6 million, to 'Assets held for sale' in the consolidated balance sheet for the year ended December 31, 2017.

Detail of Other assets (in thousands):

	December 31, 2017	December 31, 2016
Taxes payable on inter-company transfers of property[1]	$ 68,127	$ 124,551
Investments[2]	2,943	2,537
Loans and notes receivable	1,276	2,029
Escrow deposit - Caisson	1,000	–
Guaranteed deposits	725	940
Other	1,913	613
	$ 75,984	**$ 130,670**

(1) The 'taxes payable on intercompany transfers of property' is an asset account created to defer the income tax effect of an intercompany intellectual property sale pursuant to ASC 810-10-45-8.

(2) Primarily cash surrender value of company owned life insurance policies.

Accrued liabilities consisted of the following (in thousands):

	December 31, 2017	December 31, 2016
Product remediation[1]	$ 16,811	$ 23,464
Deferred compensation - Caisson acquisition	14,300	–
Restructuring related liabilities	3,560	16,859
Provisions for agents, returns and other	8,134	7,271
Legal and other administrative costs	6,082	6,184
Royalty costs	3,615	2,503
Deferred income	2,900	–
Uncertain tax positions	2,536	–
Escrow indemnity liability - Caisson	2,000	–
Product warranty obligations	1,476	2,360
Derivative contract liabilities[2]	1,294	942
Government grants	1,174	1,708
Research and development costs	797	839
Other accrued expenses	14,263	8,917
	$ 78,942	**$ 71,047**

(1) Refer to "Note 6. Product Remediation Liability."
(2) Refer to "Note 11. Derivatives and Risk Management."

We include warranty obligations within 'Accrued liabilities and other' in the consolidated balance sheets. Changes in the carrying amount of our warranty obligation consisted of the following (in thousands):

Balance at December 31, 2015	$ 1,828
Product warranty accrual	1,172
Settlements	(657)
Effect of changes in currency exchange rates	17
Balance at December 31, 2016	2,360
Product warranty accrual	707
Settlements	(1,897)
Effect of changes in currency exchange rates and other	306
AS OF DECEMBER 31, 2017	**$ 1,476**

Other long-term liabilities consisted of the following (in thousands):

	December 31, 2017	December 31, 2016
Contingent consideration[1]	$ 33,973	$ 3,890
Product remediation liability[2]	10,735	10,023
Uncertain tax positions (inclusive of penalties and interest)	18,306	12,086
Escrow indemnity liability - Caisson	1,000	–
Government grants	918	3,631
Financial derivatives[3]	751	1,392
Unfavorable operating leases[4]	252	1,672
Other	3,149	2,377
	$ 69,084	**$ 35,071**

(1) *The contingent consideration liability represents contingent payments related to three acquisitions: the first and second acquisitions, in September 2015, were Cellplex PTY Ltd. in Australia and the commercial activities of a local distributor in Colombia. The contingent payments for the first acquisition are based on achievement of sales targets by the acquiree through June 30, 2018 and the contingent payments for the second acquisition are based on sales of cardiopulmonary disposable products and heart lung machines of the acquiree through December 2019. Refer to "Note 9. Fair Value Measurements." The third acquisition, Caisson, occurred in May 2017. Refer to "Note 3. Business Combinations."*

(2) *Refer to "Note 6. Product Remediation Liability."*

(3) *Refer to "Note 11. Derivatives and Risk Management."*

(4) *Unfavorable operating leases represent the adjustment to recognize future lease obligations at their estimated fair value in conjunction with the Mergers.*

Note 20 Quarterly Financial Information (unaudited)

(in thousands except per share data)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
Year Ended December 31, 2017[1]					
Net sales	$ 226,825	$ 255,843	$ 251,253	$ 278,356	$ 1,012,277
Gross profit	147,640	170,042	161,869	172,069	651,620
Operating income from continuing operations	19,718	27,573	30,045	18,334	95,670
Net income (loss) from continuing operations	13,227	45,694	27,000	(31,456)	54,465
Discontinued Operations:					
(Loss) Income from discontinued operations, net of tax	(1,956)	1,804	830	(1,949)	(1,271)
Impairment of discontinued operations, net of tax	—	—	—	(78,283)	(78,283)
Net loss from discontinued operations	(1,956)	1,804	830	(80,232)	(79,554)
NET INCOME (LOSS)	**$ 11,271**	**$ 47,498**	**$ 27,830**	**$ (111,688)**	**$ (25,089)**
Diluted earnings (loss) per share:					
Continuing operations	$ 0.27	$ 0.95	$ 0.56	$ (0.65)	$ 1.12
Discontinued operations	(0.04)	0.03	0.01	(1.67)	(1.64)
	$ 0.23	**$ 0.98**	**$ 0.57**	**$ (2.32)**	**$ (0.52)**
Year Ended December 31, 2016[1]					
Net sales	$ 225,238	$ 251,489	$ 238,500	$ 249,631	$ 964,858
Gross profit	131,734	148,452	153,901	125,419	559,506
Operating (loss) income from continuing operations	(9,074)	25,019	30,373	(14,875)	31,443
Net (loss) income from continuing operations	(10,988)	12,737	6,431	(6,306)	1,874
Net loss from discontinued operations	(29,390)	(3,780)	(8,000)	(23,493)	(64,663)
NET (LOSS) INCOME	**$ (40,378)**	**$ 8,957**	**$ (1,569)**	**$ (29,799)**	**$ (62,789)**
Diluted (loss) earnings per share:					
Continuing operations	$ (0.22)	$ 0.26	$ 0.13	$ (0.13)	$ 0.04
Discontinued operations	(0.61)	(0.08)	(0.16)	(0.48)	(1.32)
	$ (0.83)	**$ 0.18**	**$ (0.03)**	**$ (0.61)**	**$ (1.28)**

(1) *Sales, cost of sales and operating expenses associated with our discontinued operation, the Cardiac Rhythm Management segment, for the first three quarters of the current year and all quarters of the previous year have been reclassified to 'Discontinued operations'. Refer to 'Note 4. Discontinued Operations'.*

Note 21 New Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued ASC Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers*. Update No. 2014-09 requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers and replaces most existing revenue recognition guidance. We adopted the new revenue guidance on January 1, 2018. We elected the cumulative effect transition method, however, we recognized no cumulative effect to the opening balance of retained earnings because the impact on the timing of when revenue is recognized within our Cardiac Surgery segment, specifically related to heart-lung machines and preventative maintenance contracts on cardiopulmonary equipment was insignificant. The timing of revenue recognition for products and related revenue streams within our Neuromodulation segment and discontinued operations will not change. Upon adoption of the new standard, we implemented new internal controls related to our accounting policies and procedures, including review controls to ensure contractual terms and conditions that may require consideration under the standard are properly identified and analyzed.

In January 2016, the FASB issued ASU No. 2016-01, Financial Instruments-Overall (Subtopic 825-10): *Recognition and Measurement of Financial Assets and Financial Liabilities*. Update 2016-01 requires equity investments that do not result in consolidation and are not accounted for under the equity method to be measured at fair value with changes recognized in net income. However, an entity may elect to measure equity investments that do not have readily determinable fair values at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. The amendments, in addition, reduce complexity of the impairment assessment of equity investments without readily determinable fair values with regard to the other-than-temporary impairment guidance. The amendments also require separate presentation of financial assets and financial liabilities by measurement category and form of financial asset and liability. This guidance is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Early application of certain provisions is permitted. We are currently evaluating the effect this standard will have on our consolidated financial statements and related disclosures.

In February 2016, the FASB issued ASU No. 2016-02, *Leases*. This guidance requires lessees to recognize most leases on their balance sheets as lease liabilities with corresponding right-of-use assets. While many aspects of lessor accounting remain the same, the new standard makes some changes, such as eliminating the current real estate-specific guidance. The new standard requires lessees and lessors to classify most leases using a principle generally consistent with that of "IAS 17 - Leases," which is similar to U.S. GAAP but without the use of bright lines. The standard also changes what is considered initial direct costs. Entities are required to use a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. The standard is effective for annual periods beginning after December 15, 2018 and interim periods within that year. Early adoption is permitted. We are currently evaluating the effect this standard will have on our consolidated financial statements and related disclosures.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation—Stock Compensation: Improvements to Employee Share-Based Payment Accounting*. This simplified the accounting for certain aspects of share-based payment transactions including the income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. We adopted the amendments of ASU 2016-09 (each "an Amendment") effective January 1, 2017, using the following methods:

We adopted the Amendment that requires all of the tax effects related to the settlement of share based compensation awards to be recorded through the income statement on a prospective basis. The adoption of this Amendment did not have a material effect on income tax expense for the year ended December 31, 2017.

We adopted the Amendment related to cash flow presentation of tax-related cash flows resulting from share based payments on a prospective basis. The Amendment stipulates that all tax-related cash flows resulting from share based payments are to be reported as operating activities in the statement of cash flows, rather than, under past requirements, to present gross windfall tax benefits as an inflow from financing activities and an outflow from operating activities.

Under the Amendment related to forfeitures, entities are permitted to make a company-wide accounting policy election to either estimate forfeitures each period, as required prior to this Amendment's effective date, or to account for forfeitures as they occur. We elected to continue to account for forfeitures using the estimation method.

We adopted the Amendment related to the timing of when excess tax benefits are recognized, which requires that all windfalls and shortfalls be recognized when they arise. There were no unrecognized excess tax benefits prior to the adoption of the Amendment.

In June 2016, the FASB issued ASC Update No. 2016-13, Financial Instruments—Credit Losses (Topic 326): The amendments in this update require a financial asset (or a group of financial assets) measured at amortized cost basis to be presented at the net amount expected to be collected. The measurement of expected credit losses is based on relevant information about past events, including historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amount. An entity must use

judgment in determining the relevant information and estimation methods that are appropriate in its circumstances. The initial allowance for credit losses is added to the purchase price rather than being reported as a credit loss expense. Only subsequent changes in the allowance for credit losses are recorded as a credit loss expense for these assets. In addition, credit losses relating to available-for-sale debt securities should be recorded through an allowance for credit losses. The amendments limit the amount of the allowance for credit losses to the amount by which fair value is below amortized cost, require that credit losses be presented as an allowance rather than as a write-down and will allow an entity to record reversals of credit losses in current period earnings in situations in which the estimate of credit losses declines in current period. Current GAAP prohibits reflecting those improvements in current period earnings. The amendments in this update are effective for annual periods beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted as of the fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The modified-retrospective approach is generally applicable through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. We are currently evaluating the effect this standard will have on our consolidated financial statements and related disclosures.

In August 2016, the FASB issued ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments (Topic 230 - Statement of Cash Flows)*. Update 2016-15 provides guidance on the presentation and classification of certain cash receipts and cash payments in the statement of cash flows including debt prepayment or debt extinguishment costs, settlement of zero-coupon debt instruments, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, proceeds from the settlement of corporate-owned life insurance policies, and distributions received from equity method investees. The amendments are effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. The amendments should be applied using a retrospective transition method to each period presented. We are currently evaluating the effect this standard will have on our consolidated financial statements and related disclosures.

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes - Intra-Entity Transfers of Assets Other Than Inventory (Topic 740)*. This update simplifies the accounting for the income tax consequences of transfers of assets from one unit of a corporation to another unit or subsidiary by eliminating an accounting exception that prevents the recognition of current and deferred income tax consequences for such "intra-entity transfers" until the assets have been sold to an outside party. The amendment should be applied using a modified retrospective transition method by means of a cumulative-effect adjustment directly to retained earnings as of the beginning of the period in which the guidance is adopted. The rule is effective for annual periods after December 15, 2017, including interim periods within those annual reporting periods. We currently estimate the cumulative-effect reduction to retained earnings to be approximately $21.4 million upon adoption at January 1, 2018.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles-Goodwill and Other - Simplifying the Test for Goodwill Impairment (Topic 350)*. This update removes step 2 of the goodwill impairment test that compares the implied fair value of goodwill with its carrying amount. Instead, an impairment test is performed by comparing the fair value of a reporting unit with its carrying amount. An impairment charge will be recorded by the amount a reporting unit's carrying amount exceeds its fair value. The rule is effective for annual periods after December 15, 2019, including interim periods within those annual reporting periods. We are currently evaluating the impact of adopting this update on our consolidated financial statements.

In March 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805)—Clarifying the Definition of a Business*. This update clarifies when a set of assets and activities is a business. The amendments provide a screen to determine when a set is not a business. The screen requires that when substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. If the screen is not met, the amendments in this Update (1) require that to be considered a business, a set must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output and (2) remove the evaluation of whether a market participant could replace missing elements. This update is effective for annual periods after December 15, 2017, including interim periods within those annual reporting periods. We are currently evaluating the impact of adopting this update on our consolidated financial statements.

In March 2017, the FASB issued ASU No. 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post Retirement Benefit Cost*. This update requires that an employer report the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. If a separate line item or items are used to present the other components of net benefit cost, that line item or items must be appropriately described. If a separate line item or items are not used, the line item or items used in the income statement to present the other components of net benefit cost must be disclosed. The amendments in this Update also allow only the service cost component to be eligible for capitalization when applicable. This Update is effective for annual periods after December 15, 2017, including interim periods within those annual reporting periods. We are currently evaluating the impact of adopting this update on our consolidated financial statements.

Note 22 Subsequent Events

ImThera Acquisition

On January 16, 2018, we acquired the remaining 86% outstanding interests in ImThera for up to approximately $225 million. Up-front costs are approximately $78 million with the balance paid based on achieving regulatory and sales milestones. Headquartered in San Diego, California, ImThera manufactures an implantable device for the treatment of obstructive sleep apnea that stimulates multiple tongue muscles via the hypoglossal nerve, which opens the airway while a patient is sleeping. The ImThera device is aligned with our Neuromodulation Business Franchise. ImThera has a commercial presence in the European market, and we will be advancing ImThera's enrollment in an FDA pivotal study.

TandemLife Acquisition

On February 14, 2018, we entered into an agreement to pay up to $250 million to acquire CardiacAssist, Inc. dba TandemLife, a privately-held Delaware corporation ("TandemLife"), focused on advanced cardiopulmonary temporary support solutions. Upfront costs are approximately $200 million with up to $50 million in contingent consideration based on achieving regulatory milestones. The transaction is expected to close in the first half of 2018, subject to approvals and other customary closing conditions.

Bridge Facility Agreement

In connection with the TandemLife acquisition, on February 14, 2018, LivaNova entered into a bridge facility agreement (the "Bridge Facility Agreement") providing a term loan facility with the aggregate principal amount of $170 million. The Bridge Facility Agreement will terminate on August 14, 2018, but may be extended to February 13, 2019, subject to delivery of prior notice and satisfaction of other conditions. Borrowings under the Bridge Facility Agreement will bear interest at a variable annual rate based on LIBOR plus an applicable margin. In addition, a facility fee is assessed on the commitment amount.

The Bridge Facility Agreement contains financial covenants that require LivaNova to maintain a maximum semi-annual leverage ratio and a minimum semi-annual interest coverage ratio. The Bridge Facility Agreement also contains customary representations and warranties, covenants, and events of default.

The proceeds of the Bridge Facility are intended to be used to fund the acquisition and pay related expenses, refinance certain indebtedness and for general corporate and working capital purposes.

Note 23 Transition Period Financial Information

Prior to the Mergers, Cyberonics' fiscal year ended on the last Friday in April of each year. The fiscal year of LivaNova, which became the successor issuer to Cyberonics on October 19, 2015, begins on January 1st and ends on December 31st of each year. The change of fiscal year, effective as of October 19, 2015, resulted in a transitional period which began April 25, 2015 and ended December 31, 2015.

On November, 20, 2017, we announced that we entered into a LOI to sell our CRM Business Franchise to MicroPort Scientific Corporation, and as a result, the operating activity for the CRM Business Franchise for the transitional period ended December 31, 2015. as shown in the table below, was reclassified to discontinued operations. Refer to "Note 4. Discontinued Operations" for further information.

The comparable amounts for the equivalent prior period, April 26, 2014 to December 26, 2014 (unaudited), are as follows (in thousands, except per share data):

	Transitional Period April 25, 2015 to December 31, 2015	Equivalent Prior Period April 26, 2014 to December 26, 2014
		(unaudited)
Net sales	$ 363,237	$ 181,641
Cost of sales	113,404	16,835
Gross profit	249,833	164,806
Operating expenses:		
Selling, general and administrative	147,025	83,045
Research and development	41,916	28,125
Merger and integration expenses	55,776	–
Restructuring expenses	10,494	–
Amortization of intangibles	7,030	–
Total operating expenses	262,241	111,170
Operating (loss) income from continuing operations	(12,408)	53,636
Interest income	392	125
Interest expense	(1,509)	(8)
Impairment of cost-method investments	(5,062)	–
Foreign exchange and other (losses) gains	(7,411)	109
(Loss) income from continuing operations before tax	(25,998)	53,862
Income tax (benefit) expense	(13,501)	18,791
Losses from equity method investments	(2,223)	–
Net (loss) income from continuing operations	(14,720)	35,071
Net loss from discontinued operations	(14,893)	–
NET (LOSS) INCOME	**$ (29,613)**	**$ 35,071**
Basic income (loss) per common share:		
Continuing operations	$ (0.45)	$ 1.32
Discontinued operations	(0.45)	–
	$ (0.90)	**$ 1.32**
Diluted income (loss) per common share:		
Continuing operations	$ (0.45)	$ 1.31
Discontinued operations	(0.45)	–
	$ (0.90)	**$ 1.31**
Shares used in computing basic (loss) income per share	32,741	26,552
Shares used in computing diluted (loss) income per share	32,741	26,775

Item 16 Form 10-K Summary

None.

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