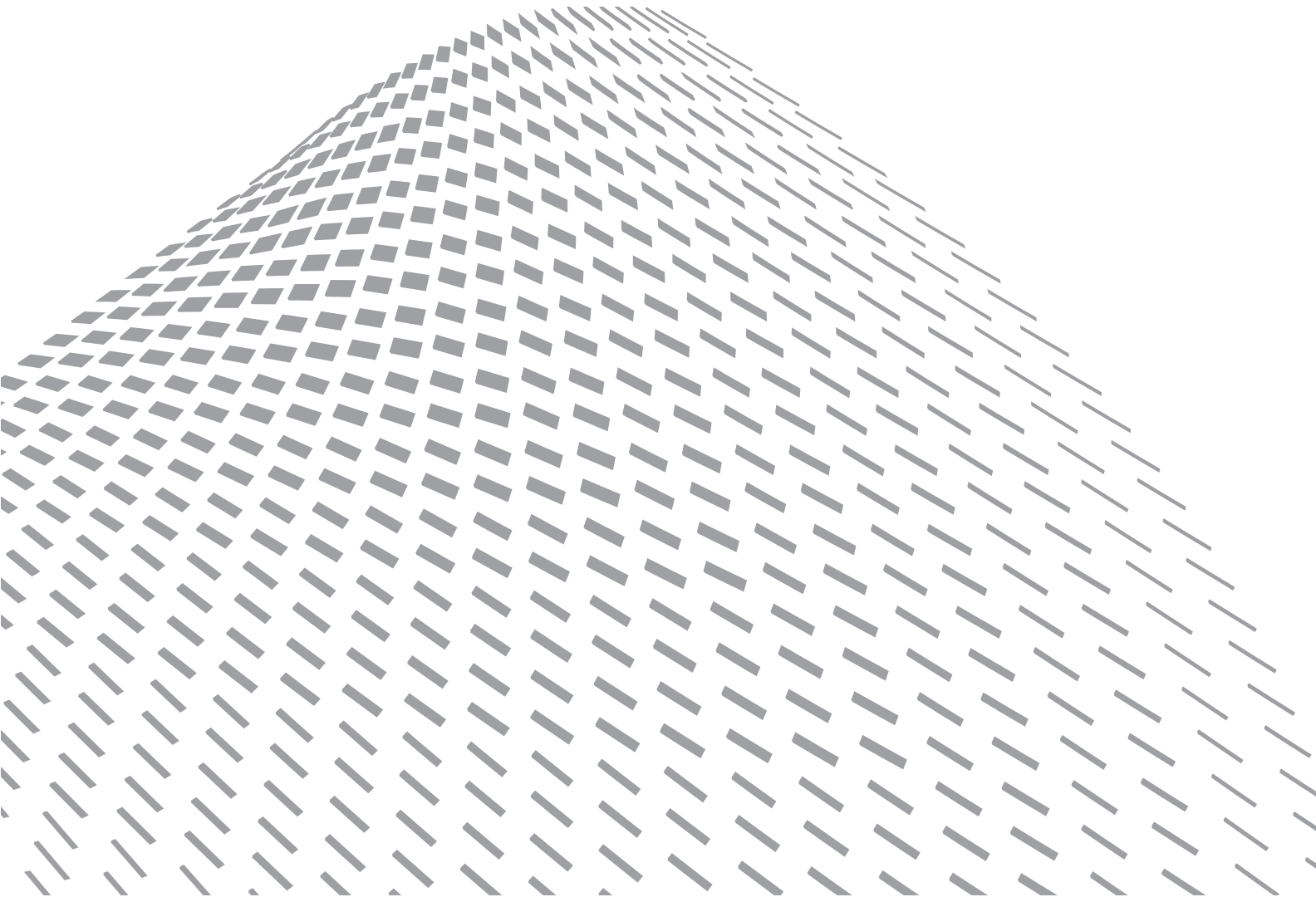
2019 UK Annual Report

LivaNova

Health innovation that matters



Annual Report 2019

Improving Quality of Life Through Innovation

Every Patient, Every Day

At LivaNova, we unite to provide hope for patients and their families through innovative medical technologies, delivering life-changing improvements for both the Head and Heart. That is our Mission. We are driven by our shared purpose to put patients first to improve the quality of their lives – for every patient, every day.

LivaNova

Health innovation that matters

This UK Annual Report of LivaNova PLC comprises the Strategic Report, Directors' Report, Directors' Remuneration Report, and the LivaNova PLC consolidated IFRS and company UK GAAP Financial Statements in respect of the year ended 31 December 2019 contained herein.

This UK Annual Report has been prepared to satisfy the reporting requirements of the Companies Act 2006 and will be included in the 2020 Annual General Meeting materials made available to shareholders.

Cautionary statement

Certain statements made in this UK Annual Report are forward looking. Such statements are based on current expectations and are subject to a number of risks and uncertainties that could cause actual results to differ materially from any expected future events or results referred to in the forward looking statements. Unless otherwise required by applicable laws, regulations or accounting standards, LivaNova does not undertake any obligation to update or revise any forward looking statements, whether as a result of new information, future developments or otherwise. Nothing in this UK Annual Report should be regarded as a profit forecast.

- Trademarks for LivaNova's VNS therapy systems, the VNS Therapy® System, the VITARIA® System and LivaNova's proprietary pulse generator products: Model 102 (Pulse™), Model 102R (Pulse Duo™), Model 103 (Demipulse®), Model 104 (Demipulse Duo®), Model 105 (AspireHC®), Model 106 (AspireSR®), Model 1000 (SenTiva®), and Model 8103 (Symmetry®).
- Trademarks for our Cardiopulmonary product systems: S5® heart-lung machine, S3™ heart-lung machine, Inspire®, Heartlink®, XTRA® Autotransfusion System, 3T Heater-Cooler™, Connect™ and Revolution®.
- Trademarks for LivaNova's 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®; and Mitral valve repair products: Memo 3D®, Memo 3D ReChord™, AnnuloFlo® and AnnuloFlex®, Bicarbon Slimline™, Bicarbon Filtline™ and Bicarbon Overline®.
- Trademarks for our advanced circulatory support systems: TandemLife®, TandemHeart®, TandemLung®, ProtekDuo®, and LifeSPARC™.
- Trademarks for our obstructive sleep apnea system: ImThera® and Aura6000®.

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

LivaNova PLC (collectively with its subsidiaries, the "Company," "LivaNova," "Group," "we" or "our") is a public limited company incorporated in the United Kingdom under the Companies Act 2006 (Registration number 09451374). The Company is domiciled in England and Wales in the United Kingdom and its registered address is 20 Eastbourne Terrace, London, W2 6LG, United Kingdom.

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STRATEGIC REPORT

Business Overview

LivaNova at a glance

Improving Quality of Life Through Innovation. Every Patient. Every Day.

WHO WE ARE

LivaNova is a global medical technology company built on decades of experience and a relentless commitment to improve the lives of patients around the world. As a worldwide leader in cardiovascular and neuromodulation solutions, we are dedicated to helping create meaningful products and therapies that transform lives each and every day. LivaNova is also dedicated to the highest standards, and we operate at the topmost level of business ethics and compliance.

OUR MISSION

At LivaNova, we unite to provide hope for patients and their families through innovative medical technologies, delivering life-changing improvements for both the Head and Heart.

OUR VALUES

Patients First. Our shared purpose is to improve the lives of patients.
Meaningful Innovation. We develop novel products and therapies to address multiple disease states.
Act with Agility. We challenge ourselves to continuously improve and act nimbly.
Commitment to Quality and Integrity. We dedicate ourselves to high quality and integrity in everything we do.
Collaborative Culture. We value diversity of thought and our collective strength as a team.

OUR PILLARS

Growth. Drive demand, build pipeline, expand portfolio.
Profitability. Build better, spend better, price better.
Talent. Attract, retain, develop.
Culture. Continuous improvement, discipline and accountability, teamwork.

Overview of 2019

After making significant progress in 2017 and 2018, we began 2019 focused on continuing the momentum of our turnaround. It turned out to be a transitional year. While we had a number of successes, unanticipated market and competitive forces affected our results, particularly in the beginning of the year. Overall, our Neuromodulation business experienced another strong year of double-digit sales growth in Europe and Rest of World, which was offset by a shortfall in our U.S. Epilepsy business due to competitive dynamics and sales force turnover. This shortfall required us to reset expectations and deploy measures to stabilize the related sales and distribution channel. These efforts led to sequential sales gains the remainder of the year. In addition, Cardiovascular was favourably impacted by over 25% organic growth in Advanced Circulatory Support ("ACS") and growth across all Cardiopulmonary product lines excluding the exit of a low margin distributor agreement. Heart valves declined 4.7% on an as reported basis related to competitive pressures in the U.S.

On 12 June 2019, we acquired Miami Instruments, LLC, a minimally invasive cardiac surgery instruments business and its related operations which are now integrated into our Heart Valve portfolio. This combination enhanced our franchise by generating growth in instruments and Perceval.

In late 2019, we made the difficult decision to end the Transcatheter Mitral Valve Replacement ("TMVR") program. We were disappointed with the need to end the TMVR program after prolonged efforts to redesign the product to address safety and efficacy concerns. Product design challenges, combined with recent changes in market dynamics significantly increased the amount of time and funding that would be required to bring the product to market. The funding dedicated to this program will be largely redeployed through investments in Neuromodulation, in particular difficult-to-treat depression (DTD).

COVID-19

As a healthcare company committed to improving the lives of patients around the world, LivaNova is closely monitoring the coronavirus ("COVID-19") situation. At the time of publication of this UK Annual Report, all of our manufacturing facilities remain open and fully operational including our sites in Italy and the United States. Our teams continue to supply customers globally with our products and services as efficiently as possible, and we are monitoring all of our vendors as we ensure they have appropriate measures in place to secure material supply. Being true to our values, we prioritize patients and their well-being, and we are working tirelessly to ensure they have access to the products and services they require.

We are fully committed to supporting all countries in the fight against the virus, and we are following guidance from the World Health Organization and local authorities to ensure the health and safety of LivaNova employees during this pandemic. We commend our employees for their efforts and commitment to providing life-changing products and therapies during this difficult time, and we have taken steps to preserve our financial position with as little impact to our employees as possible, e.g., by leaning into government assistance programs in locations where we have had to temporarily reduce hours or implement furloughs. For additional information relating to the impact of the COVID-19 pandemic on our business, please refer to the section: Strategic Report, Risks and Uncertainties, COVID-19.

A Global Business

Our Strategy

LivaNova has a direct presence* in over 25 countries globally, with our headquarters in the UK. Our Neuromodulation and Cardiovascular business franchises have headquarters located in the U.S. and Italy, respectively.

❶ Sales and Markets

1. Continued focus on increasing penetration of our three largest markets for our medical devices (the U.S., Europe, and Japan)
2. Increased focus on emerging markets
3. Build partnerships with our customers based on their priorities and needs

❷ Innovation through Research and Development

1. R&D efforts directed toward delivering meaningful innovations that our clinicians and patients value and that help them achieve their goals
2. Ongoing commitment to developing technological enhancements for existing product lines, making them more connected and less invasive, and developing innovative technologies for new and emerging markets to address unmet patient needs.
3. Continued focus on our development portfolio to prioritize our R&D teams on the innovations that matter and ensure timely delivery of new products to our markets

❸ Advance our Strategic Portfolio

1. Continued reliance on acquisitions, investments and alliances to provide access to new technologies in both new and existing markets
2. Continued focus on our current strategic portfolio programs to ensure we deliver on their value thus strengthening our existing business and paving the way for future acquisitions and investments in key strategic areas

Research and Development

The markets in which we operate are subject to rapid technological advances. Product improvement and innovation are necessary to maintain market leadership. We direct our R&D efforts 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. We initiate and participate in many clinical trials each 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.

* *As determined by a review of property leases worldwide*

Approximately 16% of our employees work in R&D. They are 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 our strategic portfolio initiatives, including difficult-to-treat depression ("DTD") and heart failure.

Our Business Model

Our Business Franchises

LivaNova is comprised of two principal business franchises, which are also our reportable segments: Neuromodulation and Cardiovascular, corresponding to our primary therapeutic areas.

Neuromodulation

We are a recognised leader in the neuromodulation space, having pioneered the revolutionary Vagus Nerve Stimulation Therapy System, which is an implantable device authorized for the treatment of drug-resistant epilepsy and difficult-to-treat depression. It is currently being studied to validate delivery of Autonomic Regulation Therapy for heart failure, and we utilize hypoglossal nerve stimulation to treat obstructive sleep apnea.

Cardiovascular

We have a global presence, providing cardiovascular solutions with an established leadership position in heart-lung machines and cardiopulmonary bypass. Cardiopulmonary products include oxygenators, heart-lung machines, autotransfusion systems, perfusion tubing systems, cannulae and other related accessories. We also offer a comprehensive line of products to treat a variety of heart valve disorders, including a complete line of surgical tissues and mechanical valve replacements and repair products for damaged or diseased heart valves. We also offer advanced circulatory support products, including LifeSPARC, our latest advanced circulation support system, built upon 20 years of life support experience.

Neuromodulation

Our Neuromodulation business franchise designs, develops and markets medical devices for the treatment of epilepsy, depression and obstructive sleep apnea. We are also focused on the development and clinical testing of the VITARIA System for treating heart failure through vagus nerve stimulation.

Neuromodulation Products

Our seminal Neuromodulation product, the VNS Therapy System, is an implantable device authorized for the treatment of drug-resistant epilepsy and difficult-to-treat depression ("DTD"). 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 tunnelled 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 patients with epilepsy: multiple seizure medications, including cannabis derived products; 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.

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. 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. In addition, in 2017,

we received FDA and CE Mark approval for our VNS therapy device for expanded magnetic resonance imaging ("MRI") labelling affirming VNS Therapy as the only epilepsy device approved by the FDA for MRI scans. Currently, the SenTiva, AspireHC and AspireSR models of VNS therapy technology provide for this expanded MRI access. Other worldwide regulatory bodies have also approved the VNS Therapy System for the treatment of epilepsy, many without age restrictions or seizure-type limitations.

We sell a number of VNS Therapy System 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), Model 106 (AspireSR) and the Model 1000 (SenTiva) pulse generators. 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 SenTiva generator is the smallest and lightest device capable of delivering responsive therapy for epilepsy.

VNS for the treatment of depression

The VNS Therapy System has FDA approval 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. The U.S. Centers for Medicare and Medicaid Services ("CMS") issued a national determination of non-coverage within the U.S. with respect to reimbursement of the VNS Therapy System for patients with DTD, significantly limiting access to this therapeutic option for most patients. However, in 2018, CMS published a tracking sheet to reconsider its National Coverage Determination ("NCD") of our VNS Therapy System for DTD in response to a letter that we submitted to CMS requesting a formal reconsideration of the NCD. We requested this review after a significant body of new evidence emerged about DTD and the role of VNS Therapy in its treatment. In February 2019, we announced that CMS had finalized its NCD to expand Medicare coverage for VNS Therapy for DTD. With the decision, CMS initiated coverage for Medicare beneficiaries through Coverage with Evidence Development ("CED") when offered in a CMS-approved, double-blind, randomized, placebo-controlled trial with a follow-up duration of at least one year. In September 2019, CMS accepted the protocol for our RECOVER clinical study, which is a double-blind randomized, placebo-controlled study with a follow-up duration of at least one year. The CED framework also includes the possibility to extend the study to a prospective registry. On 27 September 2019, the first patient was enrolled in the RECOVER study. Separate from the study, CMS is also covering device replacement for patients with a VNS Therapy device for DTD.

While VNS Therapy received CE Mark in 2001 and FDA approval in 2005 for the treatment of depression, in September 2019, the FDA approved Symmetry as the latest VNS Therapy System for Depression. In March 2020, Symmetry earned CE Mark approval for DTD.

Obstructive Sleep Apnea

We acquired ImThera Medical, Inc. ("ImThera"), a privately held emerging-growth company developing an implantable neurostimulation device system for the treatment of obstructive sleep apnea in 2018. The Neuromodulation product line now includes ImThera's 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. ImThera has a commercial presence in the European market, and an FDA pivotal study is ongoing in the U.S. During the second quarter of 2019, we determined that there would be a 12 month delay in the estimated commercialization date of our obstructive sleep apnea product currently under development.

Cardiovascular

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.

Cardiopulmonary

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

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.

Autotransfusion systems are key elements for a complete blood management strategy in 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.

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:

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 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.

Tissue heart valves

Our tissue valves include the Mitroflow aortic pericardial tissue valve with phospholipid reduction treatment which is designed to mitigate valve calcification, and the Crown Phospholipid Reduction Treatment ("PRT") and Solo Smart aortic pericardial tissue valves. 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.

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.

Miami Instruments

On 12 June 2019, we acquired Miami Instruments, LLC, a minimally invasive cardiac surgery instruments business and its related operations which are integrated into our Heart Valve portfolio. This combination enhances our franchise by generating growth in instruments and Perceval.

Advanced Circulatory Support

In April 2018, we acquired CardiacAssist, Inc., doing business as TandemLife. TandemLife is focused on advanced cardiopulmonary temporary support solutions. Initially, these advanced circulatory support ("ACS") products consisted of four product systems, all built around a common pump and controller. TandemLife provides cardiopulmonary support through veno-arterial extracorporeal life support ("ECLS"). For patients experiencing respiratory dysfunction, TandemLung provides pulmonary support through veno-venous ECLS. ProtekDuo and TandemHeart provide advanced percutaneous mechanical circulatory support ("pMCS") for Right Heart Support and Left Heart Support, respectively. In July 2019, we received FDA clearance ahead of schedule for LifeSPARC, our next-generation pump and controller, representing a significant technological upgrade with improved ease of use, more power, better flow rate and more versatility.

Modern Employer

Our people are an integral part of our growth strategy and fuel every aspect of our success. We are committed to being a modern employer, attracting and retaining the best talent.

Our Talent

As of 31 December 2019, we employed more than 4,000 employees worldwide. 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 labour market due, in large part, to our competitive compensation and benefits, our rewarding work environment and by fostering employee professional training and development.

Driven by our Mission

In 2019, we launched our Mission, Values and Pillars ("MVP") to unite LivaNova employees around a strong mission statement, our embedded values, and strategic pillars. MVP defines who LivaNova is as an organization, demonstrates how we achieve success and guides what we deliver. This platform creates a stronger connection between our company beliefs and our business goals, ultimately generating stronger employee engagement and future success.

Rewarding performance

We retain our employees through globally competitive compensation and benefits programs that include harmonizing policies through our Global Total Rewards Centre of Excellence; identifying top talent and high potential employees and providing commensurate performance development and remuneration; working closely with our trade unions and works councils to ensure that we are inclusive of the interests of our workers in our policies and decisions; and regularly updating individual development plans for our employees and succession plans for our leadership. To ensure alignment with the fair pay standards, we monitor and benchmark our payment policies and practices in every jurisdiction, ensuring that LivaNova continues to be a fair and diverse employer, free from discrimination.

Developing great people

In the last year, we continued to take important steps to create a vibrant working environment and to attract top talent.

We offered 23 undergraduate and graduate students the opportunity to join our internship team across the United States in our various offices in the following areas: R&D; Communications; Marketing; Accounting; Quality Assurance; Engineering; Business Development; Operations and Manufacturing; and Pricing. We also had one Process Engineering internship in our Vancouver office in Canada. In addition, we hosted one intern in France, one intern in the UK, 15 interns in Germany, and 20 interns in Italy, all of whom worked in one of the following areas: Operations; Sales; Quality Assurance; Clinical Affairs; and Regulatory Affairs. Our internships typically last from three to six months and offer interns the opportunity to gain practical work and research-related experience.

Apprenticeships are, in many jurisdictions, a recognized alternative for high school students who might not want to pursue an academic path. We offer such a program in Munich, Germany to develop skills and knowledge in the field of industrial mechanics and in 2019, we hosted three apprentices. These apprenticeships last for three years, and historically, our apprentices have joined the Company as employees upon successful completion of their program. We are exploring the possibility of extending our apprenticeship scheme to other locations as well.

We believe in continuing education and development regardless of nationality and origins, which is why we support the Mountbatten Program. In 2019, we welcomed three Mountbatten Fellows at our headquarters in London and at our International headquarters in Maidenhead, UK. We offer our Mountbatten Fellows the opportunity to gain valuable experience, across various sectors, such as Legal, Procurement, Sales and Marketing and International. The program operates over one year and aims to connect top, global businesses with some of the brightest candidates around the globe.

Strategic Leadership Experience

In 2019, we continued our partnership with the London Business School with the ongoing implementation of LivaNova's Strategic Leadership Program. This program was designed to enhance the leadership ability, strategic thinking, and creativity of LivaNova's senior leaders. In the second year of the program, two cohorts were held in London and Houston, and attendees represented a cross section of leaders from all business functions and LivaNova's geographies.

In 2019, the London Business School program culminated in the identification of 10 different experiments across the company to unlock different ways of achieving strategic growth. Over the course of the ensuing months, attendees continued to pursue their experiments with the results culminating in the implementation of several key internal projects, including Project Growth, Speed Mentoring, and our new Convercent Platform for Ethics and Integrity. We continue to invest in our leaders with an ongoing

commitment to conducting a new phase of the program at our Global Leadership Conference. In 2020, the conference will focus on strategy mapping and implementation.

Mentoring & Women's Networking

LivaNova continues to prioritize the development of our future talent as one of our critical levers to the success of our business. Our LivaNova Women's Network ("LWN"), an organic, grassroots mentorship program, by women and for women, is in its second year of operation. We have expanded this cross-functional program with a new class of mentors and mentees while continuing to engage the alumni from our previous year. In 2019, the LWN consisted of 59 members: 24 mentees, 18 mentors and 14 alumni. This program continues to provide members with new perspectives, more personalized development, and an opportunity to network with other women across the organization. Our LWN is one of the many ways LivaNova is working to build a better corporate culture based on strong, collaborative relationships and continuous opportunities to grow and develop.

Commercial Excellence

In 2019, a strategic focus was placed on the training, development and coaching of our Commercial Operations teams resulting in the implementation of several key programs. At the beginning of the year, the North American Commercial Operations team launched the Emerging Leaders Program for 12 aspiring leaders resulting in over 100 hours of one-on-one coaching and the promotion of three new managers. The North American sales team also spent over 10,000 hours being trained in one of four disease states focused on selling skills, technical expertise and business acumen. In Europe, strategic focus was placed on Salesforce automation and consultative selling, both applied in accordance with the LivaNova Business Systems approach. Local and online trainings centered on utilization of available tools to sales personnel, and modules emphasized self and social awareness, face-to-face customer meeting preparation and interaction as well as coaching fundamentals. In the International region, a program using the ADVANCED Coaching Framework was launched with 65 sales managers participating, leading to 439 hours of one-on-one coaching across seven regions. Additionally, a structured Onboarding Program was put in places for all new sales hires, with a total of 16 participants engaged in an 11-day program focused on product and technical training, selling skills and an introduction to the ADVANCED Coaching Framework. Finally, 91 sales professionals in the International region completed 200+ hours of ongoing training in support of continuous development. This strategic approach to training across the organization resulted in deeper employee engagement, meaningful career paths and opportunities for growth.

Gender Diversity

As at 31 December 2019, LivaNova had ten members on the Board of Directors, of whom seven (70%) were male and three (30%) were female.

LivaNova had 89 Senior managers (consisting of the executive leadership team and vice-presidents), of whom 66 (74%) were male and 23 (26%) were female.

Moreover, as at 31 December 2019, LivaNova had 4,036 employees, of whom 1,779 (44%) were male and 2,257 (56%) were female.

Social, Community and Human Rights

We are committed to human rights and the pursuit of compliance with the United Nations Universal Declaration of Human Rights not only within our own operations but also by encouraging compliance among our suppliers. We are committed to ensuring that our supply chain is free from the use of force, coercion, abuse and deception for those working in it. Our UK Modern Slavery Act Statement and California Transparency in Supply Chains Act are available on our website, www.livanova.com.

We also support the United Nations Sustainable Development ("UNSD") goals, and we have taken important steps to promote the common good. At LivaNova, we unite to provide hope for patients and their families through innovative medical technologies, delivering life changing improvements for both the Head and Heart. However, not all countries and patients have access to our products. The LivaNova International Fellowship ("LIFE") was established as a corporate social responsibility program by our company to fulfil a need to give back to society. It reflects our company's passion and duty to support less fortunate patients across the world by giving them the gift of life and bringing our life changing innovations to underserved communities.

Throughout 2019, LIFE sponsored several initiatives across the world in support of patients and communities reflecting LivaNova's **M**ission, **V**alues and **P**atient centricity. We have reached hundreds of patients, carers, refugees and citizens in 14 countries.

Examples of LIFE's contributions, to name a few, include:

- **Patients Awareness Campaigns**. Funding an Epilepsy awareness video in Malaysia to reach teachers and students in remote areas through a local patients' association;
- **Humanitarian Missions Support**. In Ghana, LIFE partnered with different NGOs to support several missions from the UK and the US to help create a Sustainable Cardiac Surgery Program serving the local population;
- **Patient Assistance Special Programs**. LIFE has donated several VNS Systems to destitute patients globally through our VNS Therapy Access Program; and

- **Collaboration with the British Red Cross**. LivaNova's LIFE had an opportunity to support a young refugees' event through the British Red Cross in the United Kingdom.

LivaNova is committed to giving back on a global level, helping the most vulnerable members of society have better access, wellbeing and LIFE.

COVID-19 Update

As a healthcare company devoted to improving the lives of patients around the world, LivaNova is fully committed to supporting all countries in the fight against the virus and has been acting accordingly as the situation evolves. With the help of its employees, LivaNova has donated 23,000 masks and five cardiopulmonary machines to hospitals in China. In Mirandola, Italy, our employees have given their own money to local charities to provide masks for a local hospital and support a volunteer ambulance service, and in Houston, we were able to give 2,300 masks to nurses at a local hospital who were down to their last three boxes. Our employees embody our values daily to put patients first, act with agility and unite to show their collaborative strength, and they continue to look for ways to make a difference during this evolving pandemic.

Grants and Donations

In 2019, LivaNova received 196 requests for research grants, educational grants, product donations, or charitable donations. We are determined to be an important part of the medical community, to support researches, and to help patients who cannot afford medical treatment. In 2019, LivaNova approved 60 such requests across Neuromodulation and Cardiovascular. In 2019, LivaNova donated $796,095 in grants for research and education, and $42,593 in product and charitable donations.

Ethics and Integrity

Anti-Corruption and Anti-Bribery

At LivaNova, we unite to provide hope for patients and their families through innovative medical technologies, delivering life-changing improvements for both the Head and Heart. This is our Mission. However we can only uphold this with the trust and respect of not only physicians and patients but all of our employees, the communities in which we work, shareholders, partners, customers and suppliers. That trust and respect comes with us meeting the highest standards of business ethics and compliance. It is not only **what** we do but **how** we do it.

In 2019, we established a set of values across LivaNova to help employees make the best decision both in business and when faced by a dilemma. They are as follows:

Patients First. Our shared purpose is to improve the lives of patients.

Meaningful Innovation. We develop novel products and therapies to address multiple disease states.

Act with Agility. We challenge ourselves to continuously improve and act nimbly.

Commitment to Quality and Integrity. We dedicate ourselves to high quality and integrity in everything we do.

Collaborative Culture. We value diversity of thought and our collective strength as a team.

Our commitment to integrity starts with our Code of Business Conduct & Ethics ("Code") which sets out the key expectations of behaviour for our directors, officers, employees and contractors. In 2019, we began the process of updating our Code to make it simpler, easier to read and give clear guidance on key expectations across a number of topics from human rights and modern slavery to bribery and corruption. The new Code was launched in early 2020 in the key languages spoken across LivaNova.

We have always had a comprehensive set of policies and procedures to provide a firm foundation for our compliance program to provide handrails and guidance for employees to help ensure compliance with applicable laws, rules and regulations. However in 2019, we did a full review of our policies and procedures. This included simplifying our policies and procedures as part of our initiative to identify and mitigate risks, but also continuously improve compliance. We launched these updated policies and procedures in January 2020.

LivaNova proactively promotes ethical behavior and encourages employees to report violation of laws, regulations, our Code and our policies and procedures. While we encourage employees to raise issues with their managers directly, we have also recently introduced a new and improved Ethics and Integrity Helpline where concerns can be reported confidentially and anonymously. All reports received are triaged to ensure timely and effective follow up. In 2019, we received 39 reports of which nine were substantiated, leading to the termination of the employment of the involved individuals.

In 2019, we upgraded our due diligence process for suppliers to ensure we perform appropriate risk assessments of third parties with whom we work including improved sanction screening and review of potential flags for human rights related risks. In 2020, we expect the process to be embedded in all new vendor selection and the Procurement to Pay process.

The Ethics and Integrity group, which was restructured in July 2019, created the Program Office to better support all regions, but also take a greater focus on monitoring and systems. We did not offer online training in 2019, instead opting to conduct over 167 in-person and WebEx training sessions (including training for all new hires). This included bespoke training and awareness materials on a variety of key topics including the detection and prevention of fraud, ethical leadership, and interactions with healthcare professionals and patients.

2020 will see the launch of the new program and we will continue to evolve the program as the external environment changes.

Environment and Corporate Social Responsibility

Environment Sustainability

LivaNova is committed to conducting business in a manner that is respectful of the environment and our natural resources. We aim to minimize the environmental impact of our business and products by reducing our carbon footprint and by using resources and energy efficiently.

To that end, 2019 was the first full year of our new car policy, which in addition to generating cost savings and efficiencies throughout the company, has been more compatible with our desire to decrease our carbon output. Not only did we exclude certain car models from our inventory due to their negative environmental impact, but we implemented a cap on our cars' CO_2 emissions at 130 g/km.

In 2018, we refreshed our approach to sustainability and implemented in our plant in Mirandola, Italy a new system called trigeneration which was designed to reduce CO_2 emissions, reduce energy consumption, generate energy savings and reduce costs. The trigeneration plant runs on natural gas and allows for the on-site production of electricity, cooling and heating. Even though trigeneration increases fuel consumption, it reduced our electricity consumption by 14,473 MWh, with an overall reduction of greenhouse gas emissions ("GHG") emissions for this plant alone of almost 600t Co_2 this past year. For further detail, please refer to the Greenhouse Gas Report in the 2018 UK Annual Report.

Finally, energy efficiency measures are continuously taken as part of the normal maintenance of our systems, as for example replacing standard lighting with more efficient technologies, replacing HVAC units with more efficient ones, etc.

2019 Greenhouse Gas Report

	2019	2018
Tonnes of carbon dioxide equivalent – tCO2(e)		
Scope 1	12,873	6,758
Scope 2	19,708	26,787
Total	32,581	33,545
Intensity ratios		
Scope 1 and Scope 2 emissions/net sales (tonnes CO_2e/£m)	30.1	30.3
Scope 1 and Scope 2 emissions/FTE (tonnes CO_2e/FTE)	8.1	8.6

We report our emissions in two scopes – direct emissions and indirect emissions as follows:

Scope 1 (direct emissions) Activities owned by our organisation that release emissions directly into the atmosphere, for example the combustion of fuels in company owned equipment and fugitive emissions. Scope 1 emissions account for 40% of total emissions.

Scope 2 (indirect emissions) Emissions released into the atmosphere associated with our consumption of purchased electricity, heat and steam. Scope 2 emissions accounts for 60% of the total emissions.

Organisational boundary

The figures reported in the table above cover emissions for LivaNova PLC using the operational control approach.

Reporting period

The reporting period is defined from 1 January 2019 to 31 December 2019, in line with our financial year.

Methodology and approach

We provide the emissions data with respect to the 2019 financial year in the Greenhouse Gas Report and the Intensity Ratio table herein. The emissions reported are location-based which are obtained using emission factors as per Department for Environment, Food & Rural Affairs ("DEFRA") for UK locations, United States Environmental Protection Agency ("EPA") for US locations and International Energy Agency ("IEA") for the remaining locations.

GHG emissions from vehicles operated by LivaNova are calculated from fuel expenses and mileage. Where this data was not available, estimates were used. The uncertainty is estimated to be less than 1%.

Starting with the 2019 financial year, LivaNova began utilizing the operational control approach in calculating its GHG emissions as it takes into account all direct and indirect GHG emissions over which LivaNova exerts control. As a consequence, the figures relating to the 2018 GHG emissions have been recalculated to allow for a more meaningful comparison.

Changes in emissions

As a result of our continuous focus on energy efficiency measures, Scope 1 and Scope 2 emissions decreased by 2.9% compared to the previous year.

The shift in emissions from Scope 2 to Scope 1 from 2018 to 2019 is mainly due to the CCHP Combined Cooling, Heat and Power plant that started operating at the end of 2018 in Mirandola, Italy. The CCHP plant, which has refreshed our approach to sustainability by way of trigeneration, runs on natural gas and allows the on-site production of electricity, cooling and heat. This resulted in the increase of fuel consumption (reported in Scope 1) and the reduction of purchased electricity (reported in Scope 2) with an overall increase in efficiency and decrease in GHG emissions.

Sustainability and Health and Safety

We strive to conduct our activities in a manner that reflects our mission and Code of Business Conduct and Ethics – which includes being a good corporate citizen, dealing fairly in business, behaving ethically, supporting a safe and healthy workplace, doing business in an environmentally responsible manner, and complying with applicable law. We are committed to ensuring that our supply chain reflects our values and beliefs, including adherence to principles of responsible sourcing for materials for our products.

We manufacture a majority of our products at our manufacturing facilities located in Italy, Germany, the U.S., 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 levels of quality and reliability. We use quality systems in the design, production, warehousing and distribution of our products to ensure 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 under section 520 of the federal Food, Drug and Cosmetic Act and its implementing regulations at 21 C.F.R. Part 820;
- The International Standards Organization – 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; and
- 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. EPA;
- The Occupational Health and Safety Assessment System;
- The European Union Registration, Evaluation, Authorization and Restriction of Chemicals;
- the U.K. DEFRA;
- Italian regulations under the IEA; and
- 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 U.S. To varying degrees, each of these agencies requires 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 our products. Our business is also affected by patient privacy and security laws, cost containment initiatives, and environmental health and safety laws and regulations worldwide.

The laws applicable to us 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 products to beneficiaries covered by government programs, among other potential enforcement actions.

Product Approval and Monitoring

Many countries where we sell our products subject such medical devices and technologies to their own approval and other regulatory requirements regarding performance, safety and quality. The following provides a brief overview of the oversight and requirements to which we are subject for the commercial distribution of our products in the U.S., Europe and Japan, the largest markets for our medical devices.

Each medical device we seek to distribute commercially in the U.S. must receive 510(k) clearance or pre-market approval ("PMA") from the FDA, unless specifically exempted by the agency. The former, known as pre-market notification or the 510(k) process, requires us to demonstrate that our new medical device is substantially equivalent to a legally marketed medical device. The latter, the more costly and rigorous PMA process, requires us to demonstrate independently that a medical device is safe and effective for its intended use. One or more clinical studies may be required to support a 510(k) application and are almost always required to support a PMA application.

The European Union ("EU"), established a single regulatory approval process, according to which a "*Conformité Européenne*" (French for "European Conformity") or CE Mark certifies conformity with all of the legal requirements of the regulatory process. To obtain a CE Mark, defined products must meet minimum standards of performance, safety and quality (i.e., the essential requirements), and then, according to their classification, comply with one or more of a selection of conformity assessment routes. 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. As a general rule, demonstration of conformity of medical devices and their manufacturers with the essential requirements must be based on, among other things, the evaluation of clinical data supporting the safety and performance of the products during normal conditions of use. The competent authorities of the EU countries separately regulate the clinical research for medical devices and the market surveillance of products placed on the market, and manufacturers with CE marked devices are subject to regular inspections to monitor compliance with the applicable directives and essential requirements. The EU published its Medical Device Regulation ("Reg MDR") in 2017 that will impose significant additional premarket and post-market requirements for our medical devices. Reg MDR has a three-year implementation period, at the end of which, national competent authorities and manufacturers must implement and ensure compliance with the regulation. Among other things, Reg MDR imposes additional reporting requirements on manufacturers of high-risk medical devices and provides additional clinical evidence requirements. We have initiated activities and anticipate compliance with Reg MDR within the applicable timeframe.

In order to be sold in Japan, our medical devices must undergo thorough safety examinations and demonstrate medical efficacy before they are granted approval. The Japanese government, through the Ministry of Health, Labour and Welfare, regulates medical devices under the Pharmaceutical Affairs Law ("PAL"). Penalties for a company's noncompliance with the PAL can be severe, including revocation or suspension of a company's business license and criminal sanctions. Japanese regulatory bodies also assess the quality management systems of the manufacturer and product conformity to the requirements of the PAL. We are subject to compliance investigations by these agencies.

Many countries in which we sell our products (outside of the U.S., the EU and Japan) have their own regulatory requirements for medical devices. Most of these countries require that product approvals be recertified on a regular basis, generally every four to 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.

The global regulatory environment is increasingly stringent and unpredictable. 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, their existing regulations. While some regulatory bodies have pursued harmonization of global regulations, requirements continue to differ significantly among countries. We expect this global regulatory environment will continue to evolve, which could impact the cost, the time needed to approve, and ultimately, our ability to maintain existing approvals or obtain future approvals for our products.

Product and 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. Regulations of the FDA and other regulatory agencies in and outside the U.S. impose

extensive compliance and monitoring obligations on our business. These agencies review our design and manufacturing practices, labeling, record keeping, and required reports of adverse experiences and other information to identify potential problems with marketed medical devices. We are also subject to periodic inspections for compliance with applicable quality system regulations, which govern the methods used in, and the facilities and controls used for, the design, manufacture, packaging and servicing of finished medical devices intended for human use. In addition, the FDA and other U.S. regulatory bodies monitor the manner in which we promote and advertise our products. Although physicians are permitted to use their medical judgment to prescribe 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.

Any adverse regulatory action, depending on its magnitude, may limit our ability to market and sell our products effectively, limit our ability to obtain future premarket approvals or result in a substantial modification to our business practices and operations.

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, subject 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. We are subject to extensive regulations in the countries in which we operate and as a result 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.

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 or economic sanctions laws or 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 sale 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

We are subject to various laws worldwide that protect the security and confidentiality of certain patient health information, including patient medical records, and that restrict the use and disclosure of patient health information. Privacy standards in Europe and Asia are becoming increasingly strict; enforcement actions and financial penalties related to privacy issues in the EU are growing; and new laws and restrictions are being passed in other countries including the U.S. 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 U.S., 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 impose 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. We may be deemed to operate as a business associate to covered entities in certain 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. 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 and data protection efforts. For example, the California Consumer Privacy Act ("CCPA"), a bill to enhance privacy rights and consumer protection for residents of California became effective 1 January 2020.

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") came into effect in 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) proactive 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 us; and (2) the administrative fines that can be levied are significantly increased, the maximum being the higher of €20 million (approximately $22.4 million), or 4% of our total worldwide revenue 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 we do 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 those 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.

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 us 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 UK 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 U.S. for arrangements with physicians or other parties outside the U.S. if the physician or party is a government official of another country and prohibited payments are made to obtain or retain business. 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 us outside the U.S. and the UK, all of which are subject to evolving interpretations.

Environmental Regulation and Management

We are subject to various environmental laws, directives and regulations both in the U.S. and abroad. Our operations involve the use of substances regulated under environmental laws, primarily in manufacturing and sterilization processes. We believe that sound environmental, health and safety performance contribute to our competitive strength while benefiting our customers, stockholders and employees. We are focused on continuous improvement in these areas by reducing pollution, depletion of natural resources and our overall environmental footprint. Specifically, we are working to optimize energy and resource usage, ultimately reducing greenhouse gas emissions and waste. We have implemented trigeneration in our plant in Mirandola, Italy which is designed to reduce CO2, reduce energy consumption, generate energy savings, and reduce costs, and we have moved from using oil to methane, reducing considerably the air pollution from our plant in Saluggia, Italy. We replaced fluorescent light in our plants in Arvada, Colorado and Mirandola with LED to reduce overall energy consumption, and we are continually working to improve the efficiency of our machinery, e.g., by replacing HVAC units with more efficient equivalents. Finally, our Saluggia plant was awarded ISO 14001 certification in 2018, becoming our second ISO-certified plant alongside Munich, Germany. For additional information relating to LivaNova's efforts in this area, please refer to the sections: Strategic Report, Environment Sustainability and Greenhouse Gas Report.

Health Care Fraud and Abuse Laws

We are also subject to U.S. federal and state government healthcare regulation and enforcement and government regulations and enforcement in other countries in which we conduct our business. The federal healthcare Anti-Kickback Statute prohibits persons from, among other things, knowingly and willfully offering or paying remuneration, directly or indirectly, to a person to induce the purchase, order, lease, or recommendation of a good or service for which payment may be made in whole or part under a federal healthcare program such as Medicare or Medicaid, unless the arrangement fits within one of several statutory exemptions or regulatory "safe harbors." Violations of the federal Anti-Kickback Statute may result in civil monetary penalties up to $100,000 for each violation, plus up to three times the remuneration involved. Violations can also result in criminal penalties, including criminal

fines of up to $100,000 and imprisonment for up to 10 years. Finally, violations can result in exclusion from participation in government healthcare programs, including Medicare and Medicaid.

In addition to the Anti-Kickback Statute, many states have their own anti-kickback laws. Often, these laws closely follow the language of the federal law, although they do not always have the same exceptions or safe harbors. In some states, these anti-kickback laws apply with respect to all payers, including commercial health insurance companies.

Additionally, violations of the U.S. False Claims Act (the "False Claims Act") can result in significant monetary penalties and treble damages. The U.S. 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 U.S., for example, in connection with the promotion of products for unapproved uses and other sales and marketing practices. The U.S. 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 U.S. 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. We are subject, for example, to the Physician Payments Sunshine Act, which requires us to annually report annually certain payments and other transfers of value we make to U.S. licensed physicians or U.S. teaching hospitals. Any failure to comply with such laws and regulations hold the potential for criminal and civil financial penalties.

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 us, we may be subject to penalties, including, without limitation, civil and criminal penalties, damages, fines, the curtailment or restructuring of our operations, and exclusion from participation in federal and state healthcare programs, 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, storage 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.

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 31 December 2019, we held more than 1,000 issued patents worldwide, with approximately 300 pending patent applications that cover various aspects of our technology. 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.

Industry Affiliations

To help navigate the complex compliance environment in which we operate, LivaNova has adopted the AdvaMed Code of Ethics on Interactions with Health Care Professionals, the APACmed Code of Ethical Conduct, the Mecomed Code of Ethical Business Practice and the MedTech Europe Code of Ethical Business Practice.

Business Review

LivaNova is reporting in its consolidated financial statements in this UK Annual Report the results from operations for the years ended 31 December 2019 and 31 December 2018. The basis of presentation, critical accounting estimates and significant accounting policies are set forth in "Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies" to the IFRS consolidated financial statements contained in this UK Annual Report. Additionally, LivaNova reported US GAAP consolidated financial statements for the years ended 31 December 2019 and 31 December 2018 in the Annual Report on Form 10-K filed with the SEC on 2 March 2020.

LivaNova reported an operating loss from continuing operations of $594.3 million on net sales of $1,084.2 million for the year ended 31 December 2019 and an operating loss from continuing operations of $255.4 million on net sales of $1,107.0 million for the year ended 31 December 2018. In the year ended 31 December 2019, LivaNova recorded impairment of intangible assets of $221.2 million, impairment of goodwill of $379.5 million, $23.5 million of merger and integration expenses, $12.3 million of restructuring expenses and $(0.6) million as litigation provision, net and is comprised of a litigation provision of $33.2 million, more than offset by $33.8 million from insurance recoveries. These items totalled $635.8 million and are included in exceptional items in the consolidated statement of (loss) income. Refer to "Note 32. Exceptional Items" for more details.

The year ended 31 December 2018 included $334.4 million in exceptional items, including $294.0 million of litigation provision, net, $24.4 million of merger and integration expenses and $15.9 million of restructuring expenses.

Key Performance Indicators

The directors of LivaNova consider that the most important KPIs for 2019 are those set out below and can be found in our press release dated 26 February 2020, and are reported under the basis of U.S. GAAP.

- **Net sales growth (on a constant currency basis, or adjusted net sales)**

Due to the number of currencies in which LivaNova's sales are invoiced to customers, the directors believe that constant currency sales growth is a more appropriate way to measure operational performance. Constant currency growth measures the change in sales between any particular year and the immediate prior year using average foreign exchange rates during the immediate prior year. Net sales include revenue earned from customers from sales of products and services net of customer discounts and estimated sales returns.

- **Adjusted operating income from continuing operations**

Income from operations, as measured under U.S. GAAP and adjusted for non-cash transactions and non-recurring costs, measures LivaNova's management of sales and normalized operating expenses.

- **Adjusted net income from continuing operations**

Adjusted net income represents our measure of the totality of LivaNova's income statement. It is calculated as U.S. GAAP net income adjusted for non-cash transactions and non-recurring costs and certain finance costs, and are adjusted for the related tax effects.

- **Adjusted earnings per share from continuing operations**

U.S. GAAP earnings per share, as adjusted for the items referred to above, is a measure often used by investors to arrive at a value for each share issued by a company, including the dilutive effect of incentive shares issued to management.

- **Share price**

An important KPI to be evaluated over a period longer than one year is the share price, which reflects not only the management of LivaNova's earnings on a consistent basis, but also management's ability to articulate medium and longer term strategy and communicate both of these to investors.

Results of Operations

In this Annual Report, LivaNova and its consolidated subsidiaries report results for the years ended 31 December 2019 and 31 December 2018 as follows:

	Year Ended 31 December	
(In thousands, except per share amounts)	**2019**	**2018**
Net sales	$ 1,084,170	$ 1,106,961
Costs and expenses:		
Cost of sales	326,485	364,843
Product remediation	15,777	10,680
Selling, general and administrative	536,198	498,423
Research and development	164,161	154,039
Exceptional items	635,837	334,356
Operating loss from continuing operations	(594,288)	(255,380)
Finance income	803	847
Finance expense	(16,402)	(9,825)
Gain on acquisition	—	4,212
Foreign exchange and other losses	(571)	(1,925)
Share of loss from equity accounted investments	—	(644)
Loss from continuing operations before tax	(610,458)	(262,715)
Income tax benefit	51,227	72,030
Loss from continuing operations	(559,231)	(190,685)
Income (loss) from discontinued operations, net of tax	365	(9,954)
Loss attributable to owners of the parent	$ (558,866)	$ (200,639)

Net Sales

The table below illustrates net sales by operating segment for the years ended 31 December 2019 and 31 December 2018 (in thousands):

	Year Ended 31 December	
Net Sales	**2019**	**2018**
Cardiovascular	$ 656,646	$ 681,825
Neuromodulation	424,547	422,990
Other	2,977	2,146
Total	$ 1,084,170	$ 1,106,961

Cardiovascular

Cardiovascular net sales for the year ended 31 December 2019 compared to the year ended 31 December 2018 decreased 3.7%. The decline in net sales for the year ended 31 December 2019 was due to declines in Cardiopulmonary and Heart Valves sales of 5.9% and 4.7%, respectively, partially offset by a $12.5 million increase in Advanced Circulatory Support sales due to strong growth in the first half of 2019 and the inclusion of the operating results of TandemLife starting from the acquisition date in April 2018. Cardiopulmonary sales of $504.7 million were negatively impacted as a result of exiting a Canadian distribution agreement on 1 January 2019 that accounted for $32.9 million in sales during the year ended 31 December 2018. Growth in sales of oxygenators, autotransfusion systems and heart-lung machines were mostly offset by the impacts of foreign currency. Growth in oxygenator sales was impacted by an unexpected component supplier issue that occurred during the fourth quarter of 2019. Heart Valves sales declined as Rest of World growth was more than offset by softness in the U.S. and the impacts of foreign currency.

Neuromodulation

Neuromodulation net sales for the year ended 31 December 2019 compared to the year ended 31 December 2018 increased 0.4%. The increase in net sales for the year ended 31 December 2019 was due to adoption of the Sentiva VNS Therapy System and strong growth in Europe and Rest of World, offset by a decline in U.S. sales principally due to competitive dynamics and sales force turnover during the first half of 2019.

The table below illustrates net sales by market geography for the years ended 31 December 2019 and 31 December 2018 (in thousands):

	Year Ended 31 December 2019			
	Cardiovascular	Neuromodulation	Other	Total
United States	$ 211,152	$ 335,332	$ —	$ 546,484
Europe[1]	176,921	46,262	—	223,183
Rest of World	268,573	42,953	2,977	314,503
Total	$ 656,646	$ 424,547	$ 2,977	$ 1,084,170

	Year Ended 31 December 2018			
	Cardiovascular	Neuromodulation	Other	Total
United States	$ 204,431	$ 348,980	$ —	$ 553,411
Europe[1]	186,558	42,443	—	229,001
Rest of World	290,836	31,567	2,146	324,549
Total	$ 681,825	$ 422,990	$ 2,146	$ 1,106,961

(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.

Cost of Sales and Expenses

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

	Year Ended 31 December	
	2019	2018
Cost of sales	30.1%	33.0%
Product remediation	1.5%	1.0%
Selling, general and administrative	49.5%	45.0%
Research and development	15.1%	13.9%

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 30.1% for the year ended 31 December 2019, a decrease of 2.9% as compared to 2018. This decrease was primarily due to the amortisation of inventory step-up value associated with the acquisition of TandemLife of $8.0 million for the year ended 31 December 2018, reduced expense associated with the change in the fair value of sales-based contingent consideration arrangements, favourable product mix and the impacts of foreign currency.

Product Remediation

Product remediation as a percentage of net sales was 1.5% and 1.0% for the years ended 31 December 2019 and 2018, respectively. Product remediation expenses include internal labour costs, costs to remediate certain inspectional observations made by the FDA at our Munich facility and costs associated with the incorporation of the modification of the 3T device design into the next generation heater cooler device.

SG&A Expenses

SG&A expenses are comprised of sales, marketing, general and administrative activities. SG&A expenses exclude integration costs incurred following the merger between Cyberonics and Sorin and restructuring costs under the restructuring plans.

SG&A expenses as a percentage of net sales increased for the year ended 31 December 2019 as compared to 2018 primarily due to increased litigation expenses related to our 3T devices, the full impact of expanding Advanced Circulatory Support commercial capabilities, increased investment in Neuromodulation, strengthening our commercial organization in international markets, costs associated with remediation of material weaknesses, expenses associated with the expiration of a contract with one of our distributors and overall lower sales.

R&D Expenses

R&D expenses consist of product design and development efforts, clinical study programs and regulatory activities, which are essential to our strategic portfolio initiatives, including DTD, obstructive sleep apnea and heart failure.

R&D expenses as a percentage of net sales increased for the year ended 31 December 2019 as compared to 2018 primarily due to additional R&D expenses associated with obstructive sleep apnea, heart failure and DTD, offset by reductions in fair value of milestone-based contingent consideration arrangements.

Exceptional Items

Items that are material, either by size or incidence, and non-recurring in nature are classified as exceptional items and include impairment of goodwill and intangible assets, merger and integration expenses, restructuring expenses and litigation provision, net. Further details on these items are included below.

Impairment of Goodwill and Intangible Assets

During the second quarter of 2019, we determined that there would be a delay in the estimated commercialization date of the Company's obstructive sleep apnea product currently under development. This delay constituted a triggering event that required evaluation of the In Process Research and Development ("IPR&D") asset arising from the ImThera acquisition for impairment. Based on the assessment performed, we determined that the IPR&D asset was impaired and as a result, recorded an impairment of $50.3 million, which is included in our Neuromodulation segment. The estimated fair value of IPR&D was determined using the income approach. Future delays in commercialization or changes in management estimates could result in further impairment.

Our announcement that we would be ending our Caisson TMVR program effective 31 December 2019, triggered an evaluation of finite and indefinite lived assets for impairment. As a result, we fully impaired the goodwill and IPR&D asset of $44.5 million and $89.0 million, respectively.

We performed a quantitative assessment of our Heart Valve CGU as of 31 December 2019 in accordance with IAS 36 "Impairment of Assets." As a result of the quantitative assessment performed, we determined that our Heart Valve CGU was impaired and accordingly, recorded impairments of $335.0 million, $51.7 million and $30.2 million to goodwill, customer relationships and developed technology.

Merger and Integration Expenses

Merger and integration expenses consist of costs associated with our merger and business combinations. Such costs primarily include computer systems integration efforts, organizational structure integration, synergy and tax planning. While merger and integration costs continue into fiscal year 2020, we expect these costs to decline over time.

Restructuring Expenses

In December 2018, we initiated a reorganization plan (the "2018 Plan") in order to reduce manufacturing and operational costs associated with our Cardiovascular facilities in Saluggia and Mirandola, Italy and Arvada, Colorado. The 2018 Plan resulted in a net reduction of approximately 75 personnel and was completed at the end of 2019.

In November 2019, we initiated a reorganization plan (the "2019 Plan") to streamline our organizational structure in order to address new regulatory requirements, create efficiencies, improve profitability and ensure business continuity. As a result, we incurred restructuring expenses of $4.4 million during the year ended 31 December 2019, primarily associated with severance costs for approximately 35 impacted employees.

Also in November 2019, we announced that we would be ending our Caisson TMVR program effective 31 December 2019 after determining that it was no longer viable to continue to invest in the program. As a result, we recognised restructuring expenses of $3.5 million during the year ended 31 December 2019, primarily associated with severance costs for approximately 50 impacted employees.

Litigation Provision, Net

During 2018, we recognised a $294.1 million litigation provision involving our 3T device. During 2019, we entered into agreements with our insurance carriers to recover $33.8 million under our product liability insurance policies. The insurance recovery was received and recognised in 2019. We recorded an additional liability of $33.2 million due to additional information obtained in the fourth quarter of 2019, including but not limited to: the nature and quality of filed and unfiled claims; certain settlement discussions with plaintiffs' counsel; and the current stage of litigation in our remaining filed and unfiled claims.

Finance Expense

We incurred interest expense of $16.4 million for the year ended 31 December 2019, as compared to $9.8 million for 2018. The increase for the year ended 31 December 2019 as compared to 2018 was primarily due to increased debt borrowings in 2019 mostly to fund 3T litigation settlements.

Gain on Acquisition

On 16 January 2018, we acquired the remaining outstanding interest of ImThera. As a result, we recognised an overall gain of $11.5 million for the fair value in excess of the cost of our investment of $14.1 million. $4.2 million of the overall gain is included in

Gain on acquisition on our consolidated statement of (loss) income for the year ended 31 December 2018. $7.3 million of the overall gain is recorded as an opening balance adjustment to retained earnings (deficit) upon the adoption of IFRS 9 on 1 January 2018.

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 earnings mix in various jurisdictions and the changes in tax laws, our consolidated effective income tax rate may vary substantially from one reporting period to another.

Our effective income tax rate from continuing operations for the year ended 31 December 2019 was 8.4% on loss from continuing operations before tax of $610.5 million compared with 27.4% on loss from continuing operations before tax of $262.7 million for 2018. Our effective income tax rate fluctuates based on, among other factors, changes in pretax income in countries with varying statutory tax rates, changes in valuation allowances, changes in tax credits and incentives and changes in unrecognised tax benefits associated with uncertain tax positions.

Compared with the year ended 31 December 2018, the decrease in the effective tax rate for 2019 was primarily attributable to the impact of a full valuation allowance for the U.S. losses, release of uncertain tax positions, change in our UK group filing exemption and other discrete items.

Discontinued Operations

We completed the CRM Sale on 30 April 2018 to MicroPort Cardiac Rhythm B.V. and MicroPort Scientific Corporation for total cash proceeds of $195.9 million, less cash transferred of $9.2 million, less a closing working capital adjustment. In conjunction with the sale, we entered into transition services agreements to provide certain support services generally for up to twelve months from the closing date of the sale. The services include, among others, accounting, information technology, human resources, quality assurance, regulatory affairs, supply chain, clinical affairs and customer support. During the years ended 31 December 2019 and 31 December 2018 we recognised income of $0.9 million and $2.8 million, respectively, for providing these services. Income recognised related to the transition services agreements is recorded as a reduction to the related expenses in the associated expense line items on our consolidated statement of (loss) income.

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

	Year Ended 31 December	
	2019	2018
Net income (loss) from discontinued operations	$ 365	$ (9,954)

Liquidity and Capital Resources

We have experienced and may continue to experience significant and unpredictable reductions in the demand for our products as healthcare customers divert medical resources and priorities towards the treatment of COVID-19.

In connection with our assessment of going concern considerations, the Group determined that the projected reduction in sales primarily in fiscal year 2020 would result in our inability to comply with certain debt covenants as of the end of 30 June 2020 and 31 December 31 2020, which represented a condition that raises significant doubt about our ability to continue as a going concern within one year after the date that these consolidated financial statements are available to be issued. As a result of this risk, in April 2020, the Group entered into amendments that modified the maximum consolidated net debt to EBITDA and the interest coverage ratio covenants in its debt agreements for the remainder of 2020. The Group also implemented cost-cutting measures, including reduced hiring, marketing, travel, capital expenditures and certain research and development activities. Management has concluded that the amendments to the covenants in its debt agreements, when combined with current and anticipated future operating cash flows, alleviates the significant doubt about the Group's ability to continue as a going concern for at least twelve months from the issuance date of these consolidated financial statements.

Based on our current business plan and future mitigating actions, we believe that our existing cash and cash equivalents, future cash generated from operations and borrowing under our current debt facilities will be sufficient to fund our expected operating needs, working capital requirements, R&D opportunities, capital expenditures, and debt service requirements for at least the twelve-month period beginning from the issuance date of these consolidated financial statements.

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 31 December	
	2019	2018
Operating activities	$ (78,935)	$ 120,489
Investing activities	(60,245)	(120,556)
Financing activities	153,329	(42,348)
Effect of exchange rate changes on cash and cash equivalents	(216)	(3,996)
Net increase (decrease) in cash and cash equivalents	$ 13,933	$ (46,411)

Operating Activities

Cash used in operating activities for the year ended 31 December 2019 increased $199.4 million as compared to 2018, primarily due to $156.9 million in 3T litigation settlement payments made during 2019 and the change in operating assets and liabilities.

Investing Activities

Cash used in investing activities during the year ended 31 December 2019 decreased $60.3 million as compared to 2018. The decrease primarily resulted from a decrease in cash paid for acquisitions of $268.9 million, partially offset by cash received from the sale of CRM in 2018 of $186.7 million.

Financing Activities

Cash provided by financing activities during the year ended 31 December 2019 increased $195.7 million as compared to 2018, primarily due to an increase in net borrowings of $139.0 million and cash used in 2018 of $50.0 million to repurchase shares under a publicly announced repurchase plan.

Debt and Capital

Our capital structure consists of debt and equity. As of 31 December 2019 total debt of $337.4 million was 34.4% of total equity of $982.0 million.

Debt

During the year ended 31 December 2019, we borrowed $197.2 million in long-term debt, incurred $3.8 million in debt issuance costs, and repaid $24.2 million in long-term debt. Additionally, we reduced our short-term unsecured revolving credit agreements and other agreements with various banks by $1.2 million.

During the year ended 31 December 2018, we reduced our outstanding revolving credit facilities by $50.7 million, repaid $23.8 million of long-term debt obligations and borrowed $103.6 million in additional long-term debt.

Contractual Obligations

We have various contractual commitments that we expect to fund from existing cash, future operating cash flows and borrowings under our credit facilities. The following table summarises our significant contractual obligations as of 31 December 2019 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 debt obligations	$ 77,414	$203,300	$ 33,610	$24,261	$338,585
Interest payments on long-term debt	8,623	9,991	2,943	798	22,355
3T litigation settlements	90,000	—	—	—	90,000
Lease obligations	12,399	19,626	13,499	16,907	62,431
Inventory supply contract obligations	21,538	1,343	—	—	22,881
Derivative instruments	3,619	61	—	—	3,680
Contingent consideration	22,953	893	113,503	—	137,349
Other commitments	489	50	50	113	702
Total contractual obligations	$237,035	$235,264	$163,605	$42,079	$677,983

As discussed within “Liquidity and Capital Resources”, in April 2020 the Company entered into amendments that modified the maximum consolidated net debt to EBITDA and the interest coverage ratio covenants in its debt agreements for the remainder of

2020. As the Company expects to be in compliance with the amended covenants, there have been no changes to the expected payment dates presented in the summary of contractual obligations shown above.

We have other commitments that we are contractually obligated to fulfil with cash under certain circumstances. Obligations under these guarantees are not normally called, as we typically comply with underlying performance requirements. As of 31 December 2019, no liability has been recorded in the consolidated financial statements associated with these obligations.

The following table summarises our guarantees as of 31 December 2019 (in thousands):

	Less Than One Year	One to Three Years	Three to Five Years	Thereafter	Total Guarantees
Guarantees on government bids[1]	$ 6,479	$ 10,148	$ 1,141	$ 1,275	$ 19,043
Guarantees – commercial[2]	814	1,361	—	1,028	3,203
Guarantees to tax authorities[3]	976	4,015	—	12,710	17,701
Guarantees to third-parties	2	14	1	483	500
Total guarantees	$ 8,271	$ 15,538	$ 1,142	$ 15,496	$ 40,447

(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) Guarantees to tax authorities consist of guarantees issued to the Italian Revenue Agency.

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 financial position, results of operations or cash flows.

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 receivable 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, and 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.

Based on our exposure to foreign currency exchange rate risk, a sensitivity analysis indicates that if the USD had uniformly strengthened by 10% against the GBP, EUR and the Japanese Yen, in the year ended 31 December 2019, the effect on our unrealised income, for our derivatives outstanding at 31 December 2019, would have been approximately $(3.1) million; if the USD had uniformly weakened by 10% against the same currencies, the effect on our unrealised expenses for our derivatives outstanding at 31 December 2019 would have been approximately $3.7 million.

Any gains and losses on the fair value of derivative contracts would generally be offset by gains and losses on the underlying transactions. These offsetting gains and losses are not reflected in the above analysis.

If LivaNova was to incur a hypothetical 10% adverse change in foreign currency exchange rates, net unrealised losses associated with LivaNova's foreign currency denominated assets and liabilities as of 31 December 2019, net of LivaNova's hedging would not be material to LivaNova's consolidated balance sheet or consolidated statement of (loss) income.

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.

Risks and Uncertainties

COVID-19

Our business, financial position, and liquidity are, and may continue to be, adversely affected by the COVID-19 outbreak.

Our business, financial position and liquidity are, and may continue to be, adversely affected by the effects of a widespread outbreak of a respiratory illness caused by a novel coronavirus (COVID-19) first identified in China in December 2019. In January 2020, the virus spread to other countries, including the United States, and in March, the World Health Organization characterized the COVID-19 outbreak as a pandemic. The outbreak and any preventative or protective actions that governments or we may take in respect of COVID-19 will result in an uncertain period of business disruption, reduced customer traffic and reduced operations. The virus will have a negative impact on our near-term financial results as a result of the deferral of elective surgeries, pressure on our liquidity measures, and slowdown in patient enrollment in clinical trials such as RECOVER. The extent to which the virus impacts our long-term results will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity and duration of COVID-19 and the actions to contain the virus or treat its impact, among others.

The recent COVID-19 pandemic has impacted our business operations, sales and operating results for the first quarter of 2020. In the last two weeks of the quarter ended March 31, 2020, we experienced a significant decline in volumes in the U.S. and Europe, as healthcare systems diverted resources to meet the increasing demands of managing COVID-19. In addition, public health bodies have recommended delaying elective surgeries during the COVID-19 pandemic, which may continue to negatively impact the usage of our products, including the number of Neuromodulation procedures.

We expect our sales and operating results for the second quarter of 2020 will be materially adversely impacted. While we currently expect to see stabilization in the third quarter of 2020 as elective surgeries are rescheduled and a recovery in the fourth quarter on a global basis, further cancellations or delays could materially adversely impact our business, results of operations and overall financial performance.

Further as a result of the impact of COVID-19, due to the restrictions at surgical centers and clinical trial sites, we anticipate few new implants in our RECOVER clinical study during the next six months. Implants are expected to resume in the fourth quarter of 2020 and we believe that new implants will continue to increase into 2021. In the current COVID-19 environment, we are remotely collaborating with study sites to continue certain activities that maintain engagement, including activating more sites for enrollment and also, identifying and consenting patients at existing sites. Additionally, we continue to perform follow-up visits for all patients who have been enrolled and implanted to date. Also, while we have temporarily paused enrollment in our ANTHEM-HFrEF U.S. pivotal trial in accordance with site restrictions due to COVID-19, we are supporting patients and physicians by using remote technology to remain engaged. While we continue to move forward with our clinical trials to the extent we are able, COVID-19 will negatively impact our progress in the short-term.

COVID-19 could also include disruptions or restrictions on our ability to distribute our products, as well as temporary closures of our facilities or the facilities of our suppliers or customers. At the end of February, for example, we temporarily closed a small administrative office in Milan, Italy and we continue to monitor the rapidly evolving situation. While we have not closed our manufacturing plants around the world, we have restricted access to production-critical employees only, encouraging the vast majority of our employees to work remotely. Regardless, there can be no assurance that any of our facilities will not need to shut down in the future. Also, while we work closely with our suppliers to ensure continuity of supply while maintaining high quality and reliability, the supply of components, raw materials and services may be interrupted or insufficient as a direct result of the COVID-19 outbreak. Any disruption of our operations or those of our suppliers could impact our sales and operating results.

The COVID-19 outbreak and the effects on the financial markets may materially and adversely affect our access to capital and cost of capital, including our ability to raise funds through equity or debt financings. We continue to evaluate potential sources of additional funds to strengthen our liquidity position and promote financial resiliency. There is no guarantee that we will be available in the future to obtain debt or equity financings to fund our obligations, or that any such financings will be on terms consistent with our expectations and past practice.

While senior management is continuously monitoring the situation, such a significant outbreak of contagious diseases in the human population has already resulted in a widespread health crisis. It has adversely affected the economies and financial markets of many countries, resulting in an economic downturn that could affect demand for our products and likely impact our operating results for an uncertain period of time. For additional information relating to COVID-19, please refer to the section: Financial Statements: Note 35. Subsequent Events. For more information on the impact of COVID-19 on the Company and LivaNova's mitigation measures, please refer to the section: Financial Statements: Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies.

Industry and Market Risks

Risks Relating to the Company

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

We are in highly competitive markets characterized by increasingly complex products that are expensive to develop and manufacture with significant price competition. 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. 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 as a result of product issues, physician advisories, safety alerts, and publications about our products. The importance of product quality, product efficacy, and quality systems in the medical device industry cannot be overstated. 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 locate new supply sources quickly in response to a supply reduction or interruption, with negative effects on our ability to manufacture our products effectively and in a timely fashion.

Our products are subject to costly and complex laws and governmental regulations, and failure to obtain product approvals or clearance may materially adversely affect our financial condition and business operations.

Our medical devices and technologies, as well as our business activities, are subject to a complex set of regulations and rigorous enforcement, including by the FDA, U.S. Department of Justice, Health and Human Services – Office of the Inspector General, and numerous other federal, state, and non-U.S. governmental authorities. To varying degrees, each of these agencies requires us to comply with laws and regulations governing the development, testing, manufacturing, labeling, marketing and distribution of our products. As a part of the regulatory process of obtaining marketing clearance or approval for new products and new indications for existing products, we conduct and participate in numerous clinical trials with a variety of study designs, patient populations, and trial endpoints. Unfavorable or inconsistent clinical data from existing or future clinical trials or the market's or FDA's perception of this clinical data, may adversely impact our ability to obtain product approvals, our position in, and share of,

the markets in which we participate, and our business, financial condition, results of operations and cash flows. 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 requirements administered by the FDA and other non-U.S. 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.

We cannot guarantee that we will be able to obtain or maintain marketing clearance for our new products or enhancements or modifications to existing products, and the failure to maintain approvals or obtain approval or clearance could have a material adverse effect on our business, results of operations, financial condition and cash flows. Even if we are able to obtain approval or clearance, it may take a significant amount of time; require the expenditure of substantial resources; involve stringent clinical and pre-clinical testing, as well as increased post-market surveillance; and involve modifications, repairs or replacements of our products, or limit the proposed uses of our products.

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. 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 regulators will agree with any of our decisions not to seek clearance or approval.

If regulators require us to cease marketing and to recall a modified device until we obtain a new clearance or approval, our business, financial condition, operating results and future growth prospects could be materially adversely affected. Any recall requirement for which we seek additional clearances or approvals, could result in significant delays, fines, increased costs associated with modification of a product, loss of sales, reputational damage and potential operating restrictions imposed by regulators.

Failure to comply with product-related government regulations may materially adversely affect our financial condition and business operations.

Both before and after a product is commercially released, we have ongoing responsibilities under FDA and other applicable non-U.S. government agency regulations. For instance, many of our facilities and procedures and those of our suppliers are also subject to periodic inspections by the FDA to determine compliance with applicable regulations. The results of these inspections can include inspectional observations on FDA's Form-483, warning letters, or other forms of enforcement. If the FDA were to conclude that we are not in compliance with applicable laws or regulations, or that any of our medical products are ineffective or pose an unreasonable health risk, the FDA could ban such medical products, detain or seize adulterated or misbranded medical products, order a recall, repair, replacement, or refund of such products, refuse to grant pending PMA applications or require certificates of non-U.S. governments for exports, and/or require us to notify health professionals and others that the devices present unreasonable risks of substantial harm to the public health. The FDA and other non-U.S. government agencies may also assess civil or criminal penalties against us, our officers or employees and impose operating restrictions on a company-wide basis. The FDA may also recommend prosecution to the U.S. Department of Justice. Any adverse regulatory action, depending on its magnitude, may restrict us from effectively marketing and selling our products and limit our ability to obtain future pre-market clearances or PMAs, and could result in a substantial modification to our business practices and operations. These potential consequences, as well as any adverse outcome from government investigations, could have a material adverse effect on our business, results of operations, financial condition, and cash flows.

In addition, in the U.S., device manufacturers are prohibited from promoting their products other than for the uses and indications set forth in the approved product labeling, and any failure to comply could subject us to significant civil or criminal exposure, administrative obligations and costs, and/or other potential penalties from, and/or agreements with, the federal government.

Governmental regulations outside the U.S. have, and may continue to become, increasingly stringent and common. In the EU, for example, Reg MDR, when it enters into full force in 2020, will include significant additional premarket and post-market requirements. Penalties for regulatory non-compliance could be severe, including fines and revocation or suspension of a company's business license, mandatory price reductions and criminal sanctions. Future laws and regulations may also have a material adverse effect on us.

If our marketed medical devices are defective or otherwise pose safety risks, the FDA and similar non-U.S. governmental authorities could require their recall or initiate an enforcement action, or we may initiate a recall of our products voluntarily.

The FDA and similar non-U.S. 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 a material deficiency. We have initiated voluntary product recalls in the past. A future recall announcement could harm our reputation with customers and negatively affect our sales.

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. We also may be required to bear other costs or take other actions that may have a negative impact on our future sales 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 as a recall. If the regulating authority disagrees with our determinations, it could require us to report those actions as recalls. In addition, if we conduct a recall but fail to report it, we could be subject to enforcement action.

In addition, depending on the corrective action we take to redress a device's deficiencies or defects, the regulators 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. 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. 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.

As a manufacturer of medical devices, we will continue to be exposed to product liability claims that could adversely affect our consolidated financial condition and tarnish 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 significant portion of our product liability risks and also hold global insurance policies to cover a portion of future potential 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. In addition, future unanticipated large liability claims may raise substantial doubt about our ability to continue as a going concern.

We are currently 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.

We are involved in various litigation matters that may adversely affect our financial condition and may require us to devote significant resources to our defense of these claims.

Such litigation includes a 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 April 2020, we are aware of approximately 90 filed and unfiled claims worldwide, with the majority of the claims filed in various federal or state courts throughout the U.S. The number includes cases that have settled but have not yet been dismissed. 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. In the fourth quarter of the year ended 31 December 2018, we recognized a $294.1 million litigation provision and in the fourth quarter of the year ended 31 December 2019 we recognized an additional $33.2 million litigation provision related to these claims. Although we are defending these matters vigorously, we cannot predict the outcome or effect of any claim or other litigation matter.

Global healthcare policy changes and tightening of reimbursement for products may have a material adverse effect on us.

In response to increases in healthcare costs, there have been and continue to be proposals by governments, regulators and third-party payors to control these costs. These proposals have resulted in efforts to enact 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 use of our products. The adoption of some or all of these proposals could have a material adverse effect on our financial position and results of operations.

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 U.S. 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 U.S.) and private insurance plans for the healthcare services provided to their patients. 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.

Our failure to comply with rules relating to reimbursement of healthcare goods and services, healthcare fraud and abuse, false claims and other applicable laws or regulations may subject us to penalties and adversely impact our reputation and business operations.

Our devices and therapies are subject to regulation by various governmental agencies worldwide responsible for coverage, reimbursement and regulation of healthcare goods and services, including laws and regulations related to kickbacks, false claims, self-referrals and health care fraud. Any failure to comply with these laws and regulations could subject us or our officers and employees to criminal and civil financial penalties.

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.

Patient confidentiality and federal and state privacy and security laws and regulations may adversely impact our financial position and reputation.

HIPAA establishes federal rules protecting the privacy and security of personal health information in the U.S. In addition to HIPAA, virtually every U.S. state has enacted laws to safeguard privacy, and these laws vary significantly from state to state and change frequently. 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. The operation of our business involves the collection and use of substantial amounts of "protected health information." 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.

Similarly, the EU's GDPR protects the privacy and security of "personally identifiable information" and personal health information relating to individuals within the EU and, 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 subjects us to a rigorous proactive compliance scheme, and if we fail to comply with the GDPR, we could be sued for compensation by individuals who have suffered material or non-material damage and could suffer administrative fines up to the higher of €20.0 million (approximately $22.4 million), or 4% of the total worldwide annual sales 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, harm to our competitive position and loss of reputation.

We are increasingly dependent on our own sophisticated information technology systems and those of third parties to operate our business, and certain products of ours 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 confidential 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. The secure processing, maintenance and

transmission of this information is critical to our operations but the size and complexity of our products and the information technology systems on which we rely 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, to obtain proprietary or confidential information, or to remotely disrupt or access the systems of large health care providers by exploiting our products or systems. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. The negative publicity resulting from such disruptions could significantly impact our reputation and stock price.

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. 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. This includes any such data privacy or cybersecurity issues that may arise from unique events such as COVID-19. 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 we are unable to maintain secure, reliable information technology systems and prevent disruptions, outages, or data breaches, we may suffer legal and 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 or CCPA'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 and enforcement actions. 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 or other cyber-attacks pursuant to laws such as CCPA. While we have not been named in any such lawsuits, if a breach or loss of data occurs, we could become a target of civil litigation or government enforcement actions.

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 precision-engineered components, sub-assemblies, and finished products to exact tolerances and 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.

Our R&D 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 or cash flows.

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 our patent and other proprietary rights against others.

We 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. Physician customers have historically moved quickly to new products and new technologies, and intellectual property rights, particularly patents and trade secrets, play a significant role in product development and differentiation. We operate in an industry characterized by extensive patent litigation, and intellectual property litigation is inherently complex and unpredictable. Patent litigation can result in significant damage awards and injunctions that could prevent our manufacture and sale of affected products or require us to pay significant royalties in order to continue to manufacture or sell affected products. 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.

The laws and intellectual property systems of certain countries in which we market some of our products do not protect our intellectual property rights to the same extent as in the U.S., which may impact our market position in those countries. If we are unable to protect our intellectual property in those countries, it could have a material adverse effect on our business, financial condition, cash flows and reputation.

We may experience volatility in the trading price of our shares due to fluctuations in our quarterly operating results or other factors.

We experienced volatility in the trading price of our shares during 2019, including following the pre-release of our earnings for the first quarter, and the stock price continues to be impacted in 2020 as a result of COVID-19. In the future, our operating results may vary significantly from quarter to quarter due to many factors, including factors beyond our control, which may cause further volatility in the trading price of our shares. For additional information relating to COVID-19 and its impact on the business, please refer to the initial COVID-19 risk described in this section: Strategic Report, Risks and Uncertainties, COVID-19.

We are subject to environmental laws and regulations and the risk of environmental liabilities, violations and litigation in multiple jurisdictions.

Our operations involve the use of substances regulated under environmental laws, primarily those used in manufacturing and sterilization processes in the various jurisdictions where we operate. Certain environmental laws assess liability on current, prior and/or related owners or operators of real property for the costs or investigation, removal or remediation of hazardous substance at their properties or at properties on which they have disposed of hazardous substances. 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. In addition to cleanup actions brought by governmental authorities, private parties could bring personal injury or other claims due to the presence of, or exposure to, hazardous substances. The ultimate cost of site cleanup and timing or future cash outflows is difficult to predict, given the uncertainties regarding the extent of the required cleanup and the interpretation of applicable laws and regulations. The costs of complying with current or future environmental protection and health and safety laws and regulations, or liabilities arising from past or future releases of, or exposures to, hazardous substances, may exceed our estimates, or have a material adverse effect on our business, results of operations, financial condition and cash flows.

We are subject to the risks of conducting business internationally.

We develop, manufacture, distribute and sell our products globally and we intend to continue to pursue growth opportunities worldwide. Our international operations are subject to risks that are inherent in conducting business overseas and under non-U.S. laws, regulations and customs. These risks include possible nationalization, negative consequences associated with Brexit, expropriation, importation limitations, pricing restrictions and violations of laws. 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 U.S.;
- difficulty enforcing agreements;
- creditworthiness of customers;
- trade protection measures and import and export licensing requirements;
- different labor regulations and workforce instability;
- higher danger of terrorist activity, war or civil unrest;
- selling our products through distributors and agents;
- political and economic instability; and
- the risks further described above in the section entitled "*The failure to comply with anti-bribery laws could materially adversely affect our business and result in civil and/or criminal sanctions.*"

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 addition, 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. A negative response from a works council or union-organized work stoppages by employees could have a negative impact on our business.

The failure to comply with anti-bribery laws could materially adversely affect our business and result in civil and/or criminal sanctions.

Our operations are subject to anti-corruption laws, including the UK Bribery Act, FCPA and other anti-corruption laws that apply in countries where we do business. The UK Bribery Act, FCPA and these other laws generally prohibit us and our employees and intermediaries from bribing, being bribed or making other prohibited payments to government officials or other persons to obtain or retain business or gain some other business advantage. Because of the predominance of government-administered healthcare systems in many parts of the world outside the U.S., many of our customer relationships are potentially subject to such laws.

We are, therefore, 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 in violation of these laws and our Code of Conduct. 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.

Global enforcement of anti-corruption laws 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. In addition, we cannot predict the nature, scope or effect of future regulatory requirements to which our international operations might be subject or the manner in which existing laws might be administered or interpreted. 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.

Our debt instruments require us to comply with affirmative covenants and specified financial covenants and ratios.

Certain restrictions and covenants in our debt instruments could affect our ability to operate, particularly in light of COVID-19 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 our 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, ability to operate and results of operations. For additional information relating to COVID-19 and its potential implications on the business, please refer to the section: Strategic Report, Risks and Uncertainties, COVID-19."

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

From time to time, we acquire businesses and expect to pursue acquisitions in support of our strategic goals. 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. 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, R&D, 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 may incur impairments of intangible assets and goodwill, primarily acquired in acquisitions, including the merger between Sorin and Cyberonics, that adversely affect our financial results.

As of 31 December 2019, the carrying value of our net intangible assets and goodwill totaled $1.1 billion, which represents 55.9% of our total assets. As of December 31, 2018, the carrying value of our net intangible assets and goodwill totaled $1.7 billion, which represented 67.7% of our total assets. During the year ended December 31, 2019, we determined that the In Process Research and Development ("IPR&D") asset relating to ImThera was impaired and as a result, recorded an impairment of $50.3 million, and we also fully impaired the goodwill and the IPR&D asset associated with the discontinuation of the Caisson business by recording a $42.4 million impairment to goodwill and a $89.0 million impairment to the IPR&D asset. Additionally, we performed a quantitative assessment of our Heart Valve CGU as of 31 December 2019 in accordance with IAS 36 "Impairment of Assets." As a result of the quantitative assessment performed, we determined that our Heart Valve CGU was impaired and accordingly, recorded impairments of $335.0 million, $51.7 million and $30.2 million to goodwill, customer relationships and developed technology.

We review, when circumstances warrant, the carrying amounts of our intangible assets and goodwill to determine whether those carrying amounts continue to be recoverable in accordance with International Financial Reporting Standards. Significant negative industry or economic trends, disruptions to our businesses, significant unexpected or planned changes in the use of assets, divestitures and market capitalization declines, among other events, may result in impairments to goodwill and other intangible assets. Current impairments have significantly affected our financial results and future impairments could significantly affect reported financial results.

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 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 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 and other healthcare professionals, 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.

Inadequate funding for U.S. federal government agencies and government shutdowns could negatively affect our business, results of operations and financial condition.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel, government shutdowns and statutory, regulatory and policy changes. Disruptions at the FDA and in other U.S. federal agencies may increase the time necessary for new medical devices to be reviewed and/or approved which would adversely affect our business.

In addition, a portion of our revenue is dependent on U.S. federal government healthcare program reimbursement. Any disruption in U.S. federal government operations, including government shutdowns or pandemics such as COVID-19, could have a material adverse effect on our business, results of operations and financial condition.

Risks from Tax, Residency and Jurisdiction of Incorporation

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 U.S., the UK, the EU and various other jurisdictions. 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 and 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. Our effective tax rates could be affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities or changes in tax laws or their interpretation. We are also subject to ongoing tax audits in various non-U.S. 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.

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.

Based on our management and organizational structure, we believe that we should be regarded as a resident exclusively in the UK for tax purposes and that we are appropriately treated as a foreign corporation for U.S. federal tax purposes. Although we are incorporated in the UK, the U.S. Internal Revenue Service (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. If we were to be treated as a U.S. corporation for U.S. federal income tax purposes, we could be subject to substantially greater U.S. tax liability than currently contemplated as a non-U.S. corporation.

The IRS may limit Cyberonics' and its U.S. affiliates' ability to utilize their U.S. tax attributes and impose an excise tax on gains recognized by certain individuals as a result of the merger of Cyberonics and Sorin.

The merger of Cyberonics and Sorin is considered an inversion for tax purposes. The U.S. Internal Revenue Code ("IRC") and regulations under the IRC impose 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) depending on the resulting percentage ownership by U.S. persons of the merged company. The effect of this provision in the IRC 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, an excise tax may be imposed on certain individuals. In our case, we believe that the former stockholders of Cyberonics own less than the IRC's stated percentage of the Company. However, the final regulations relating to calculating the ownership percentage are new and subject to interpretation, and thus it cannot be assured that the IRS will agree with our position.

The UK's withdrawal from the EU, commonly referred to as "Brexit," could lead to increased market volatility and make it more difficult for us to do business in Europe or have other adverse effects on our business.

On 31 January 2020, the UK departed from the EU and has entered a transition period that is scheduled to end on 31 December 2020, unless extended. Brexit could adversely affect UK, European and worldwide economic and market conditions and could

contribute to instability in global financial and foreign exchange markets, including volatility in the value of the British Pound and Euro. For the three months and full year ended 31 December 2019, net sales generated from our European operations constituted approximately 20% and 21%, respectively, of total net sales. Although the long-term effects of Brexit will depend on any agreements the UK makes to retain access to the EU markets during the transition period, Brexit has created additional uncertainties that may ultimately result in new regulatory costs and challenges for medical device companies and increased restrictions on imports and exports throughout Europe. In addition, we and several of our wholly owned subsidiaries that are domiciled either in the UK, various EU Member States, or in the U.S., are parties to intercompany transactions and agreements under which we receive various tax reliefs and exemptions in accordance with applicable international tax laws, treaties and regulations that could be materially changed by Brexit. Any of the foregoing could adversely affect our ability to conduct and expand our operations in Europe and may have an adverse effect on our business, 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 our capital structure.

We are a public limited company incorporated under the laws of England and Wales. Under English law, our board of directors may only allot shares with the prior authorization of shareholders. Our articles of association currently authorize the allotment of additional shares for a period of five years up to an aggregate of approximately 9.8 million shares. English law also generally provides shareholders with preemptive rights when new shares are issued for cash; which rights may be excluded by shareholders. Our articles currently exclude preemptive rights in relation to the allotment of shares for cash. In addition, English law also generally prohibits a public company from repurchasing its own shares without the prior approval of shareholders. The approval of the allotment of additional shares, the exemption of statutory preemptive rights and the restriction on repurchase of shares must all be renewed by shareholders at least every five years. We cannot provide any assurance that these authorizations will always be approved, which could limit our ability to issue equity and thereby adversely affect the holders of our securities.

Transfers of our shares, other than ones effected by means of the transfer of book-entry interests in the Depository Trust Company ("DTC"), may be subject to UK stamp duty or UK stamp duty reserve tax ("SDRT").

Transfers of our shares effected by means of the transfer of book-entry interests in DTC are not subject to UK stamp duty or SDRT. However, if a shareholder holds our shares directly rather than through DTC, any transfer of shares could be subject to UK stamp duty on SDRT at a rate of 0.5% of the consideration paid for the transfer and certain issues or transfers of shares to depositories or into clearance services are charged at a rate of 1.5% of the consideration paid for the transfer. The transferee generally pays the UK stamp duty or SDRT. The potential for UK stamp duty or SDRT could adversely affect the trading price of our shares.

The facilities of DTC are a widely used mechanism that allow 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.

Our Approach to Stakeholders

Section 172 statement

The Board welcomes the new reporting requirement as an opportunity to explain how dialogue with stakeholders has informed and helped shape its decisions. In the performance of its duty to promote the success of the company, the Board has regard to a number of matters, including ensuring that LivaNova maintains a reputation for high standards of business conduct and considers the needs and concerns of shareholders and stakeholders. In doing so, the Board ensures it fully understands the potential impacts of the decisions it makes for its stakeholders, the environment, employees, suppliers, and the communities in which it operates.

Delegation of authority

The Board believes governance of LivaNova is best achieved by empowering management of the Company to the CEO, subject to the Board's defined oversight and monitoring. The Board routinely monitors the management team, ensuring that it is regularly updated, while retaining ultimate responsibility. At every board meeting, the directors review, with management, the progress against strategic priorities. This collaborative approach helps to promote the long-term success of LivaNova and its stakeholders. Per the requirements of Section 172, the below articulates LivaNova's principal stakeholders, their concerns, our methods of engagement and how we impact them.

Patients. At LivaNova, we unite to provide hope for patients and their families through innovative medical technologies. That is our mission. We are driven by our shared purpose to put patients first to improve the quality of their lives – for every patient, every day.

Their concerns. Our patients want LivaNova to to manufacture safe, quality products that are responsive to their needs. They want LivaNova to take ownership in the face of product complaints and they hope to impact next generation devices with their feedback.

How we engage and impact. The Board enjoys receiving patient updates and stories, whether from marketing videos, print articles or in-person, on-site town hall meetings. They grasp the importance of the patient relationship, and in turn, inform strategic decisions in relation to next generation devices and how such products incorporate the needs and wants of the company's ultimate beneficiaries. In 2019 for example, the Company, with input from the Board, made the difficult decision to end the TMVR program after prolonged efforts to redesign the product to address safety and efficacy concerns.

Employees. LivaNova's workforce is key to its success. Our people help us maintain our strong reputation for high standards of business conduct and are fundamental in delivering our purpose. We, in turn, want them to be proud of working at LivaNova. This can only be done if we listen to their concerns and take appropriate action.

Their concerns. Employees want to know that the Board is considering employee impact when making strategic decisions. They want opportunities and progression, and they want diversity and inclusion. They expressed a desire in the 2018 LivaNova4You Employee Survey for a defined mission and set of values so as to generate a stronger connection between our business goals and our company beliefs, thereby leading to greater employee engagement and business success.

How we engage and impact. The Board takes the opportunity to meet with staff at all levels in the organisation when making site visits in our different locations; when able, they also attend and participate in town halls. The Company conducts regular LivaNova4You staff surveys amongst all employee which the Board reviews and discusses in the context of potential action items; in 2019 for example, with support from the Board, we introduced the concept of "MVP" in response to the 2018 survey, to unite us, inspire us and serve as our foundation. In addition, the Audit and Compliance Committee receives quarterly updates from the Chief Ethics and Integrity Officer and reviews workplace policies and whistle-blowing incidents, ensuring that appropriate follow up is implemented as necessary. For more information regarding our employee engagement and MVP program, please refer to the Modern Employer section of the Strategic Report.

Physicians and Healthcare Professionals. Our physicians and healthcare professionals are our customers. We maintain excellent relationships with these individuals because they provide us with a detailed understanding of therapeutic and diagnostic developments, trends, and emerging opportunities, which allows us to respond quickly to the changing needs of providers and patients.

Their concerns. Our physicians and healthcare professionals want to know they are in receipt of quality, effective products, and they want LivaNova to be held accountable for its products. They want their patients to be heard and they want the Company to receive their feedback and respond to it accordingly.

How we engage and impact. The Company actively participates in medical symposia and conducts comprehensive training and educational activities to enhance our presence in the medical communities in which we serve. Management, including the Chief Ethics and Integrity Officer, regularly provides updates at board meetings, noting the status of our relationships with physicians and healthcare professionals and how they are evolving as we respond to various market conditions and events. The Board

engages in healthy discussion in response to better inform strategic decision-making. In 2019 for example, in response to a shortfall in our U.S. Epilepsy business, management, with support and input from the Board, coordinated in-person meetings with key physicians across the U.S. to assess and develop initiatives to revitalize and more deeply penetrate the Epilepsy business. For further information regarding the importance of these relationships, please refer to the Risks and Uncertainties section in the Strategic Report titled: ***The success and continuing development of our products depend on maintaining strong relationships with physicians and healthcare professionals***.

Suppliers. Our suppliers need to be nurtured in order for our business to grow and develop, even more so because of the nature of the products we manufacture. We are, as a result, reliant upon our suppliers to provide quality products, to comply with inspection and regulator review, and in certain instances, to maintain supply, especially in instances of sole suppliers for whom we have no alternative.

Their concerns. Our suppliers desire prompt and fair payment and clear communication regarding specifications, needs, and quality and regulatory restrictions.

How we engage and impact. The Board receives updates from the management team and Audit and Compliance Committee on relationships with our key suppliers and how these relationships are evolving as we respond to different market conditions and environments. In 2019, supply chain risks surrounding forecasting, demand planning, assessment of need, and relationship building were identified to the Board, which resulted in (1) the merger of direct and indirect procurement to comprehensively manage and nurture the Company's suppliers, and (2) the formation of a Supply Chain Steering Committee to remain focused on key relationships and needs of the Company in relation to our suppliers. Throughout, the Board has actively engaged in such conversations, participating in strategy regarding contingency planning and alternative source providers. For more information regarding the significance of our supplier relationships, please review the related Risks and Uncertainties section in the Strategic Report titled: ***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***.

Government and Regulators. In many countries, our principal customers are government-owned hospitals, who purchase our products for their national health systems. It is important that we maintain good relationships with governments and regulators so that we continue to develop cost efficient solutions to their national healthcare issues.

Their concerns. Governments and regulators seek comfort around LivaNova's product safety, compliance with local, legal regulatory requirements, competition issues, and social and economic concerns.

How we engage and impact. The medical device industry is heavily regulated and our worldwide businesses are overseen by many different authorities in various jurisdictions. The Board relies on the management team, particularly the Market Access and Regulatory teams, to effectively manage its relationships with governments and regulators and raise issues of importance as the landscape evolves. For more information regarding the intersection between Government, Regulators and LivaNova, please refer to the Government Regulation and Other Considerations section of the Strategic Report.

Investors and shareholders. Investors and shareholders are the ultimate owners of our business.

Their concerns. Our investors and shareholders are focused on LivaNova's strategy, performance, and leadership. They want to know there is a succession plan, that the company is acting appropriately with respect to remuneration and that proper corporate governance practices are being followed. Ultimately, our investors and shareholders want to know that the Board is representing the shareholders' interests and properly supervising the company.

How we engage and impact. Per corporate governance best practices, the Board has committed to using and promoting the following at LivaNova: annual Board, committee and individual director performance evaluations; annual elections for directors; separated roles for the Chair of the Board and CEO; majority voting for directors in uncontested elections; supermajority voting to change or amend the Company's Articles of Association; a prohibition on repricing of grants in equity compensation plans; and a prohibition on the pledging of Company securities, subject to a period to unwind existing pledges.

On a more personal level, the Board meets with investors and responds to letters and emails from shareholders throughout the year. Members of the Board are also available to engage with investors if they have matters they wish to raise with the non-executive team. The Board recognizes the importance of having access to capital, obtaining investor buy-in, and recruiting investors who are interested in a long-term relationship. As a result, the Investor Relations team reports on major shareholders and any significant changes in their holdings regularly at each Board meeting, and copies of analyst reports on the Company and its peers are circulated to the directors. The Annual General Meeting is perhaps the most important engagement mechanism, allowing (1) the directors to present an annual report containing information about the Company's strategy and performance, and (2) the shareholders the opportunity to exercise their voting rights with respect to important company issues.

Strategic Report was approved by the Board of Directors on

8 May 2020

Damien McDonald
Chief Executive Officer & Director

DIRECTORS' REPORT

Directors

The directors of the Company, who held office in the year ended 31 December 2019 and through our financial statements date, were as follows:

Chairman

Mr. Daniel J. Moore

Executive Director

Mr. Damien McDonald

Non-executive directors

Mr. Francesco Bianchi

Mr. William Kozy

Ms. Stacy Enxing Seng[(1)]

Mr. Hugh Morrison

Mr. Alfred Novak

Dr. Sharon O'Kane

Dr. Arthur Rosenthal

Ms. Andrea Saia

(1) Ms. Stacy Enxing Seng was elected by our shareholders via ordinary resolution during our 2019 Annual General Meeting of shareholders on 18 June 2019.

Directors' indemnities

Each director is covered by appropriate directors' and officers' liability insurance, and there are also deeds of indemnity in place between the Company and each current and former director. These were executed in 2015 except for the deeds of indemnity in respect of Ms. Andrea Saia, who was appointed by the Board to fill a vacancy on 27 July 2016, Mr. Damien McDonald, who was appointed by the Board effective 1 January 2017, Mr. William Kozy who was elected by the shareholders effective 12 June 2018 and Ms. Stacy Enxing Seng who was elected by the shareholders effective 18 June 2019. These deeds were executed in 2016, 2017, 2018 and 2019 respectively. These deeds of indemnity provide for the Company to indemnify the directors in respect of any proceedings brought by third parties against them personally in their capacity as directors of the Company. The Company would also fund on-going costs in defending a legal action as they are incurred rather than after judgement has been given. In the event of an unsuccessful defence in an action against them in a criminal or civil action, individual directors would be liable to repay defence costs to the extent funded by the Company. In respect of any investigations or actions taken by a regulatory authority, individual directors would be liable to repay defence costs to the extent funded by the Company if that regulatory authority has determined that the relevant director has acted fraudulently, been grossly negligent, or has engaged in wilful misconduct in relation to that claim.

Company details and branches outside the UK

The Company is a public limited company incorporated in England and Wales with registered number 09451374. The Company's registered address is 20 Eastbourne Terrace, London, England W2 6LG.

The Company has one branch outside the UK: LivaNova Plc (Italian Branch) in Italy.

Political donations

The Company has not made any political donations, or incurred any political expenditure, in the period under review. In addition, the Company has not made any contributions to a non-EU political party during the period under review. Moreover, we have not sought shareholder approval in relation to political donations.

Dividends

No dividend has been proposed during, or in respect of, the course of the year under review and the Company has never declared a dividend. The Company has no immediate intention to declare and pay dividends.

Share Repurchases

In 2016, shareholders approved a plan for the re-purchase of Ordinary shares off-market, i.e. on Nasdaq. In 2018, LivaNova re-purchased 500,333 of its Ordinary shares of £1.00 nominal value each, at an average price of $99.91 per share, for a total of $50,000,000. All purchased shares were subsequently cancelled. The Board believed such purchase to be in the best interest and to the corporate benefit of shareholders generally. No shares were repurchased after 31 December 2018.

Financial risk management objectives/policies and hedging arrangements

Please refer to "Note 4. Financial Risk Management" in the consolidated financial statements for information on LivaNova's financial risk management objectives/policies and hedging arrangements.

Post-balance sheet events

Details regarding finalization of the working capital adjustment associated with the sale of MicroPort, a settlement payment associated with 3T, and the Company's response and state of affairs in the wake of COVID-19, are set out in the following sections: Strategic Report, Risk and Uncertainties, COVID-19 and the Financial Statements: Note 35. Subsequent Events.

Future developments / Research and Development

Details of the activities of the Company in the field of research and development are set out in the Strategic Report.

Greenhouse Gas

We report on our Greenhouse Gas emission in our Strategic Report.

Section 172 Statement and Stakeholder Engagement

The Board welcomes the new reporting requirement of the Section 172 Statement as an opportunity to explain how dialogue with stakeholders has informed and helped to shape its decisions. Please refer to our Section 172 Statement and Stakeholder Engagement in the following section: Strategic Report, Our Approach to Stakeholders.

Statement of disclosure to the UK statutory auditor

In accordance with section 418 of the Companies Act, each director at the date of this Directors' Report confirms that:

- so far as they are aware, there is no relevant audit information of which the Auditor is unaware; and
- they have taken all the steps they ought to have taken as director to make themselves aware of any relevant audit information and to establish that the Auditor is aware of that information.

This confirmation is given and should be interpreted in accordance with the provisions of section 418 of the Companies Act.

Auditors

PricewaterhouseCoopers LLP, the Company's Statutory Auditors, has indicated its willingness to continue in office, and on the recommendation of the Audit and Compliance Committee and in accordance with section 489 of the Companies Act 2006, a resolution to re-appoint it will be proposed at the 2020 AGM.

Statement of directors' responsibilities in respect of the financial statements

The directors are responsible for preparing the Annual Report and the financial statements in accordance with applicable law and regulation.

Company law requires the directors to prepare financial statements for each financial year. Under that law the directors have prepared the Group financial statements in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union and Company financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 "Reduced Disclosure Framework", and applicable law). Under Company law the directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and Company and of the profit or loss of the Group and Company for that period. In preparing the financial statements, the directors are required to:

- select suitable accounting policies and then apply them consistently;
- state whether applicable IFRSs as adopted by the European Union have been followed for the Group financial statements and United Kingdom Accounting Standards, comprising FRS 101, have been followed for the Company financial statements, subject to any material departures disclosed and explained in the financial statements;
- make judgements and accounting estimates that are reasonable and prudent; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Group and Company will continue in business.

The directors are also responsible for safeguarding the assets of the Group and Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Group and Company's transactions and disclose with reasonable accuracy at any time the financial position of the Group and Company and enable them to ensure that the financial statements and the Directors' Remuneration Report comply with the Companies Act 2006 and, as regards the Group financial statements, Article 4 of the IAS Regulation.

The directors are responsible for the maintenance and integrity of the Company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Going concern

The Group and Company financial statements of LivaNova have been prepared on a going concern basis. A new strain of coronavirus (COVID-19) has spread to many countries in the world and the outbreak has been declared a pandemic by the World Health Organization. The U.S. Secretary of Health and Human Services has also declared a public health emergency in the United States in response to the outbreak. Considerable uncertainty still surrounds the COVID-19 virus and its potential effects, and the extent of and effectiveness of responses taken on international, national and local levels. Measures taken to limit the impact of COVID-19, including shelter-in-place orders, social distancing measures, travel bans and restrictions, and business and government shutdowns, have already resulted in significant negative economic impacts on a global basis.

Due to these impacts and measures, we have experienced and may continue to experience significant and unpredictable reductions in the demand for our products as healthcare customers divert medical resources and priorities towards the treatment of COVID-19. In addition, our customers may delay, cancel, or redirect planned purchases in order to focus resources on COVID-19 or in response to economic disruption related to COVID-19. For example, in the last two weeks of March 2020, we experienced a significant decline in volumes in the U.S. and Europe, as healthcare systems diverted resources to meet the increasing demands of managing COVID-19. In addition, public health bodies have recommended delaying elective surgeries during the COVID-19 pandemic, which may continue to negatively impact the usage of our products, including the number of Neuromodulation procedures.

As of March 31, 2020, the Group had cash and cash equivalents of $125.8 million. In connection with our assessment of going concern considerations, the Group determined that the projected reduction in sales primarily in fiscal year 2020 would result in our inability to comply with certain debt covenants as of the end of 30 June 2020 and 31 December 31 2020, which represented a condition that raises significant doubt about our ability to continue as a going concern within one year after the date that these consolidated financial statements are available to be issued. As a result of this risk, in April 2020, the Group entered into amendments that modified the maximum consolidated net debt to EBITDA and the interest coverage ratio covenants in its debt agreements for the remainder of 2020. The Group also implemented cost cutting measures, including reduced hiring, marketing, travel, capital expenditures and certain research and development activities. The Directors have concluded that the amendments to the covenants in its debt agreements, when combined with current and anticipated future operating cash flows, alleviates the significant doubt about the Group's ability to continue as a going concern for at least twelve months from the issuance date of these consolidated financial statements.

Regardless, COVID-19 continues to create uncertainty in relation to the impact on future revenues, the ability of the Group to access supplies and personnel to continue the production of inventory to meet customer needs, and ultimately, the amount of time necessary for elective surgeries to return to previous levels. Absent any further cost-cutting measures, there is a risk of breaching the Group's and Company's debt covenants in future periods and a risk that the Group and Company may not have sufficient funds to meet future obligations as they fall if: current market conditions deteriorate further as a result of COVID-19; management's judgments and assumptions regarding future industry, market or operating conditions change, including our assumptions regarding the timing of when elective surgeries may be rescheduled; or if there are government interventions impacting our areas of operation. If this were to occur, the Group may pursue further or more substantial cost-cutting measures all of which are in the control of the Group such as; reduction of discretionary spend in the areas of R&D and clinical trials and reduction in employee related compensation. Also, while not entirely in our control, we may:

- Execute additional amendments or waivers to existing debt covenants,
- Obtain additional bank financing or alternative sources of liquidity,
- Renegotiate the terms of our existing debt facilities, and
- Explore additional funding options such as accounts receivable factoring.

Having considered our revised forecasts, which include the impact of COVID-19 on our business and a projected decline of elective surgeries in Q2, with stabilisation in Q3 and return to growth in Q4, as well as a severe but plausible downside to this base case which forecasts a delay in the return to growth, and the counter measures that are in the Group's control, the directors are satisfied that the risk of a breach of banking covenants through at least twelve months from the issuance date of these Group and Company financial statements could be mitigated. Therefore, it is appropriate to adopt the going concern basis in preparing the Group and Company financial statements.

This Directors' Report was approved by the Board of Directors on 8 May 2020

Keyna P. Skeffington
Company Secretary

REMUNERATION REPORT

Dear Shareholder,

As the Chairman of the Compensation Committee, I am pleased to present LivaNova's Directors' Remuneration Report for the year ended 31 December 2019.

During 2019, while LivaNova achieved several successes, it met some unanticipated market and competitive forces that impacted results. The Neuromodulation business experienced another strong year of double-digit sales growth in Europe and Rest-of-World, but it was offset by a shortfall in our U.S. Epilepsy business due to competitive dynamics and sales force turnover that required us to reset expectations and deploy measures to stabilize the related sales and distribution channel. These efforts led to sequential sales gains the remainder of the year. Cardiovascular was favorably impacted by over 25% organic growth in Advanced Circulatory Support ("ACS") and growth across all Cardiopulmonary product lines excluding the exit of a low margin distributor agreement. Heart valves declined 4.7% on an as reported basis related to competitive pressures in the U.S.

2019 Short Term Incentive Plan ("STIP") Results

None of the financial objectives were met, but all the non-financial objectives were achieved with the exceptions of one Regulatory project and the Commercialization element, leading to a 30% achievement of Target. However, given the Company's overall financial results, the Compensation Committee reduced the payout under the STIP to 25% of Target.

2019 Remuneration Policy

The Compensation Committee continued to take steps to ensure that the Company's remuneration arrangements remained aligned to our strategy and strongly linked to our long-term performance. It was guided by the revised Directors' Remuneration Policy, which took effect upon shareholder approval at the 2019 AGM. In coordination with the launch of our Mission, Values and Pillars to unite LivaNova employees around a strong mission statement, the Compensation Committee sought to establish a remuneration framework that aligned performance in a consistent, responsible way with LivaNova's strategic long-term goals, thereby generating shareholder value.

Clawback Policy

Next, the Committee approved a policy to recoup executive compensation in circumstances where the Board determines that recoupment is appropriate and warranted, including the filing of a material restatement of the Company's financial results (otherwise known as a "clawback policy"). The rationale for such a policy is the requirement under Dodd-Frank legislation for the SEC to implement rules to recover monies in the event of a material misstatement.

Remuneration Report / Say-on-Pay

We were also very pleased with the endorsement of LivaNova's compensation of its named executive officers (otherwise known as "US Say-on-Pay"), which was approved by 95.4% of the shareholders at our 2019 AGM. The Committee will continue to ensure that performance outcomes and any consequent payments are aligned with business performance and the growth transformation that LivaNova is currently undertaking.

Review of Non-Executive Director and Committee Fees

The remuneration for the non-executive directors remained flat from 2015 until 2019.

The Committee will continue to monitor the development of best practice relating to remuneration. We are committed to ensuring that our remuneration is strongly linked to our strategy so that we continue to deliver sustainable value for our shareholders.

I would like to thank my fellow Committee members for their support during the year and look forward to your support at our 2020 AGM.

As Chairman of the Compensation Committee, I am committed to ensuring an open dialogue with our shareholders. If you have any questions about remuneration generally, or the presentation or the content of this report, please contact me via mail to c/o Company Secretary, LivaNova PLC, 20 Eastbourne Terrace, London W2 6LG, United Kingdom or via email at company.secretariat@livanova.com

Arthur Rosenthal, Ph.D.

Chairman of the Compensation Committee

8 May 2020

How We Establish Executive Compensation Levels

The Directors' remuneration policy (the "Policy"), which aims to encourage directors to perform in a consistent, responsible way with the focus on long-term value creation for our shareholders, took legal effect at the conclusion of the 2019 annual general meeting ("AGM"). LivaNova strives to remain competitive in order to retain key talent, which is essential to our successful operation, and the Compensation Committee continues to monitor the development of best practice relating to remuneration. In keeping with our Policy in making executive compensation determinations, we rely on several factors to set compensation elements and compensation targets consistent with our executive compensation program objectives, which include:

Assessment of Individual Performance

Individual performance has a strong impact on compensation.

CEO

Following discussion with the CEO, the Compensation Committee sets the CEO's performance objectives for the year. At the end of the year, the Compensation Committee and the chairman of the Board meet in executive session to assess the CEO's performance against his performance objectives, his contribution to our company's performance, his ethics and integrity and other leadership attributes.

Assessment of Company Performance

The Compensation Committee establishes specific, objectively measurable company performance objectives that the Board, the Compensation Committee and management believe will help drive shareholder value. Achievement or not of the performance objectives determines substantially all of the payouts under the short-term incentive plan and the lapsing or not of forfeiture restrictions on performance-based equity incentive awards.

Benchmarking Analysis

The Compensation Committee reviews peer-group data as a market check for compensation decisions, but does not base compensation targets on peer-group data alone.

- Individual Competitiveness. The Compensation Committee compares the overall pay of individual executives to the most relevant benchmarking data available from its independent advisor, Pearl Meyer. The executive director's pay is driven primarily by individual and company performance, as well as internal pay equity.
- The peer group data is used as a market check to compare individual pay to the broad middle range (25th to 75th percentile) of peer group pay. The Compensation Committee typically seeks to maintain base salary toward the middle of peer group pay, but will permit annual bonuses and long-term equity incentive awards to approach the upper end of the broad middle range when justified by individual and company performance

Overall Competitiveness

The Compensation Committee uses aggregated market data as a reference point to ensure that executive compensation falls within the broad middle range of comparable pay at peer companies.

The Compensation Committee further aligns the executive compensation program with shareholder interests by:

- Having a double trigger change in control provision before cash severance may be paid;
- Prohibiting excise tax gross-up payments;
- Prohibiting stock option repricing and discounted stock option grants;
- Not allowing our officers or directors to pledge their LivaNova stock, subject to a transition period to unwind any existing obligations;
- Prohibiting hedging transactions of any type of Company security, including without limitation puts, calls, equity swaps, collars, exchange funds, prepaid variable forwards or other financial instruments or derivative securities; and
- Allocating 50% of NEO long-term incentives to performance-based awards.

2019 Remuneration at a glance

Total 2019 remuneration for our sole Executive Director (audited)

	Basic Salary and Fees ($'000)[1]	Taxable Benefits ($'000)[2]	Annual Bonus ($'000)[3]	Service-Based Awards ($'000)[4]	Long-Term Incentive Awards ("UK LTIP") ($'000)[4]	Pension Contributions ($'000)[5]	Total ($'000)
Damien McDonald – 2019	933	204	277	2,500	–	163	4,077
Damien McDonald – 2018	951	256	999	5,838	1,196	259	9,499

* *The currency conversion rates used are for 2019 - £/$ =1.275738014 (average currency rate for the period 1 January 2019 to 31 December 2019)*

(1) In 2019, Damien McDonald was paid a base salary of £731,499 per annum ($ 933,202).

(2) In 2019, the taxable benefits column line includes: (i) an accommodation allowance of £96,000 ($122,471), a car allowance of £17,750 ($22,644), (ii) school allowance of £20,448 ($26,086), and (iii) health insurance of £22,247 ($28,381), and (iv) UK hotel stay of £2,757 ($3,517) .

(3) The annual bonus is explained in the "Short – Incentive Plan – executive director – audited information" below. The significant difference as compared to the 2018 annual bonus is due to the company's 2019 performance.

(4) Because of LivaNova's strong US nexus (listing and shareholding base), its "Long-Term Incentive Plan" (the "LivaNova LTIP") includes service-based awards which have no performance requirement.and vest, subject to continued service, in tranches over one or more years or by cliff vesting. Due to the difference in design of the LivaNova LTIP and the typical UK LTIP and in order to provide optimal transparency, LivaNova has created a separate column for service-based awards. Amounts recorded in that column are equal to the full grant date value of the equity awards (whether RSUs or SARs. (In the event of SARs, because a SAR by definition has nil value at the moment of grant, LivaNova has recorded the grant value approved by the Compensation Committee).

Service-based awards granted:

Awards approved in 2018

- *On 15 March 2018, the Compensation Committee approved an award of service-based RSUs and SARs, each with a value of $1,125,000. Because these awards were service-based, they were recorded in the year of grant (2018) in the Service-Based Award column, at their grant date value. LivaNova records the Compensation Committee-approved value ($1,125,000) for the SARs.*

Awards approved in 2019

- *On 30 March 2019, the Compensation Committee approved an award of service-based RSUs and SARs, each with a value of $1,250,000. Because these awards were service-based, they were recorded in the year of grant (2019) in the Service-Based Award column, at their grant date value. LivaNova records the Compensation Committee-approved value ($1,125,000) for the SARs.*
- *No PSUs were scheduled to vest in 2019.*

(5) Mr McDonald is entitled to an overall pension contribution or pension allowance of 15% of salary and bonus. As cash in lieu entails a UK employer's national insurance charge in the amount of 13.8% of the cash in lieu, the cash paid is decreased by this amount in order that the payment by the Company remains relatively cost-neutral.

Short-term incentive plan – executive director (audited)

Our STIP is an annual cash-based incentive bonus plan, which is an important component of our total compensation program. It provides incentives that compensate our CEO for achieving objectives intended to enhance shareholder value.

Under English company law, we are obliged to adopt a remuneration policy for our directors, including our CEO, who is also a director. Under that shareholder-approved remuneration policy, our CEO's maximum short-term incentive cannot exceed 200% of his base salary. In the case of a calculated payment higher than 200%, the Compensation Committee would affirmatively act to reduce the award to not exceed 200% of his base salary in compliance with the UK remuneration policy.

The table below shows the minimum and maximum achievement of the target short-term incentive payment under the 2019 STIP.

	2019 STIP Minimum (Percentage of Base Salary)	2019 STIP Maximum (Percentage of Target)
Damien McDonald	–%	171%

(1) Per the Remuneration Policy, the maximum bonus opportunity is 200% of base salary.

In April 2020, Damien McDonald received $277,245 (£217,321), an amount equal to 25% of his bonus opportunity. The performance objectives selected by the Committee for the 2019 bonus plan were as follows:

	Target Bonus as Percentage of Salary
Adjusted net sales	45%
Adjusted net income	30%
Non-Financial Objectives	25%
	100%

Payouts under the 2019 STIP were based on the achievement of two financial objectives: Adjusted Net Sales and Adjusted Net Income

Objectives	Threshold ($'000)	Target ($'000)	Maximum ($'000)	Actual ($'000)
Group Adjusted Net Sales[(1)]	1,120	1,154.6	1,270.1	1089.6
Group Adjusted Net Income[(2)]	174.9	180.3	198.3	150.4

(1) Adjusted Net Sales is our net sales for 2019 at budgeted currency exchange rates, excluding net sales from any acquisitions in 2019. Results discussed in the press release on 26 February 2020.

(2) Adjusted Net Income is our non-GAAP net income at reported currency exchange rates, after adjustments for the effects of acquisitions, divestitures, restructuring, integration, purchase price allocation and intangible amortization, special items, including 3T Heater Cooler remediation and significant and unusual litigation, including 3T Heater Cooler litigation, and equity compensation. Results discussed in the press release on 26 February 2020.

The non-financial objectives comprise product development projects that will drive sales generation beyond 2019. The Design projects element (10% at Target) was the completion of two product development projects, the Clinical projects element (10% at Target) was achievement of enrollment objectives for two clinical studies, the Regulatory projects element (15% at Target) included three regulatory submission objectives and a fourth project, and the Commercialization element (5% at Target) was a commercial launch objective. Together, the nine product development project objectives represent 25% of each executive's Target bonus, but total 40% if all objectives were achieved, representing a potential overachievement of 15%.

All the non-financial objectives have been achieved with the exceptions of one Regulatory project and the Commercialization element leading to a total 30% achievement. However, taking into account the overall financial performance of the Company in 2019, the Compensation Committee decided that a 30% payout would not be appropriate in the circumstances and therefore exercised its discretion to reduce the payout to 25%.

	Non-Financial Objectives			
	Design	Clinical	Regulatory	Commercialization
Mr. McDonald	10%	10%	15%	5%

The following table summarizes how the final payout percentage has been obtained.

	STI Target (% of Base Salary)[(1)]	Financial Performance Weight %	Weighted Financial Performance Payout %	Weighted Non-Financial Performance Payout %	STIP Pay-Out %	STIP Payout ($)
Damien McDonald	125%	75%	–%	25%	25%	277,245

(1) For STI target (% of base salary), the STI changes made throughout the year are as follows: Mr. McDonald had 100% STI target from January through March 31, 2019 and 125% effective April 1, 2019.

The financial performance objectives for the short-term incentive program included an adjusted net sales objective, which was the adjusted net sales as reported by the Company at the Company's budgeted currency exchange rates, and an adjusted net profit objective, which was the adjusted non-GAAP (U.S. generally accepted accounting principles) net profit as reported by the Company.

Percentage change in remuneration of the Chief Executive Officer

The table below reflects a comparison between the percentage change in remuneration of the Chief Executive Officer between 2019 and 2018 in comparison with the other employees.

	Base salary change %	Benefits change %	Annual Cash Bonus change %
Chief Executive Officer	(2)%	(20)%	(72)%
Average for all employees	3%	2.4%	(54)%

The table above reflects a comparison of Mr. McDonald's remuneration in 2018 to his remuneration in 2019. The change in base salary is due to the FX conversion rate, in 2018 FX rate was 1.33 for 2019 FX rate was 1.27. 2019 was the first full year Mr. McDonald's base salary was at GBP 731,500 after the April 2018 merit increase. Using the 1.27 FX rate, the base salary change % would have been 2.57% . The change in benefits reflects a decrease in school allowance and accommodation allowance as per his employment service agreement. The change in annual cash bonus was due to the payout percent being 105% in 2018 vs 25% in 2019.

By comparison, the other employees received an average base salary increase of three percent. The U.K.-based employees received an average taxable benefit increase of 2.4%. Employees in countries outside the U.K. are excluded from this comparison given the many variations in benefits across different countries. Finally, the other employees received an average decrease in annual bonus payout of 54%. The annual cash bonus payout was 102% in 2018 vs 48% in 2019.

Single total figure on remuneration – Chairman and non-executive directors (audited)

	Basic Annual Fee ($'000)		Additional Fee ($'000)[1]		Benefits ($'000)[2]		Total Emoluments ($'000)		Service-Based Share Awards ($'000)[3]		Total ($'000)	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Daniel J. Moore	110	110	75	75	3	1	188	186	185	185	373	371
Hugh Morrison	110	110	36	36	2	–	148	146	110	110	258	256
Alfred J. Novak	110	110	23	23	–	–	133	133	110	110	243	243
Arthur L. Rosenthal	110	110	20	20	–	–	130	130	110	110	240	240
Francesco Bianchi	110	110	23	23	6	1	139	134	110	110	249	244
Sharon O'Kane	110	110	15	15	2	1	127	126	110	110	237	236
Andrea Saia	110	110	15	15	–	2	125	127	110	110	235	237
William Kozy[4]	110	61	6	3	3	–	119	64	110	110	229	174
Stacy Enxing Seng[5]	59	–	4	–	3	–	66	–	110	–	176	–

(1) Cash amounts paid in addition to the basic retainer: $15,000 for each member of the Audit and Compliance Committee, plus an additional $30,000 for the chairperson of the committee; (iii) an additional cash retainer of $8,000 for each member of the Compensation Committee, plus an additional $20,000 for the chairperson of the Committee; (iv) an additional cash retainer of $6,000 for each member of the Nominating and Governance Committee, plus an additional $15,000 for the chair of the Committee; The fees for the non-executive directors for 2019 are as follows:

Mr. Moore $75,000 for Chairman; Mr. Morrison, $30,000 for chair of the Audit and Compliance Committee; Mr Novak $15,000 for member of Audit and Compliance Committee and $8,000 for member of Compensation Committee; Mr. Rosenthal had $20,000 for the chair of Compensation Committee; Mr. Bianchi $15,000 for member of the Audit and Compliance Committee and $8,000 for member of the Compensation Committee; Ms. O'Kane $15,000 for chair of Nomination and Governance Committee; Ms. Saia $15,000 for member of the Audit and Compliance Committee; Mr. Kozy $6,000 for member of the Nominating and Corporate Governance Committee; Ms. Enxing-Seng received a prorated amount of $4,000 for member of the Compensation Committee.

(2) The amounts refer to expenses reimbursement for the Directors to exercise their role that are considered taxable under UK tax legislation.

(3) An annual award of RSUs, granted on 18 June 2019 and vesting on 18 June 2020, having a value of $110,000, plus an additional value of $75,000 for the Chairman.

(4) William Kozy was appointed to LivaNova's Board following his election by shareholders at the 2018 AGM on 12 June 2018. His fees for the third quarter 2018 were prorated.

(5) Stacy Enxing- Seng was appointed to LivaNova's Board following her election by shareholders at the 2019 AGM on 18 June 2019. Her fees for the third quarter were prorated.

(6) All amounts are paid in GBP, amounts above are represented in USD.

2019 LivaNova Long-Term Incentive Plan (the "LivaNova LTIP") (audited)

The LivaNova LTIP is comprised of both performance-based and service-based awards. The awards received by Mr. McDonald under the LivaNova LTIP are explained below:

Service-Based Restricted Stock Units – executive director

Mr. McDonald received 12,853 service-based RSUs vesting in equal or substantially equal amounts on each of the first four anniversaries of the grant date. The Committee determined the number of RSUs awarded by dividing one-fourth of the Award Value by the most recent closing price ($97.25) of an ordinary share of our stock on the Nasdaq as of the grant date and rounding down to the nearest whole unit.

Relative Total Shareholder Return Performance Stock Units

Mr. McDonald received 15,424 performance stock units subject to a relative total shareholder return market condition. The Committee determined the number of PSUs awarded to each participant by dividing one-fourth of the Award Value by the Closing Price ($97.25) and rounding down to the nearest whole unit. At the end of calendar year 2021, our rTSR for the three-year period 2019 through 2021 will be compared to the rTSR for a comparator group of 29 companies selected by the Committee on the advice of its compensation consultant, Pearl Meyer & Partners, and the number of shares of our stock actually delivered to the participants will be determined by the following chart, with linear interpolation applied between specified levels:

TSR Performance Percentile Rank	Percent Payout
≥90th	200%
80th	150%
50th	100%
30th	40%
<30th	0%

FCF Achievement Relative to FCF Target	Percent Payout
≥150%	200%
125%	150%
100%	100%
60%	20%
<60%	–%

Stock Appreciation Rights

Mr. McDonald received 39,357 stock appreciation rights vesting in equal or substantially equal amounts on each of the first four anniversaries of the grant date. The Committee determined the number of SARs awarded to each participant by dividing one-fourth of the Award Value by the Black-Scholes value of a SAR (31.76) based on the Closing Price ($97.25) and rounding down to the nearest whole right.

Three-Year Cumulative Adjusted Free Cash Flow Performance Stock Units

Mr. McDonald received 15,424 PSUs subject to achievement of a three-year cumulative adjusted free cash flow target. The Committee determined the number of PSUs awarded to each participant by dividing one-fourth of the Award Value by the Closing Price ($97.25) and rounding down to the nearest whole unit. At the end of 2021, cumulative adjusted free cash flow for the period 2019 through 2021 will be compared to the full cash flow target, and the number of shares of our stock actually delivered to the participants will be determined by the following chart, with linear interpolation applied between specified levels:

The 2019 rTSR Peer Group includes:

ABIOMED, Inc.
Intuitive Surgical, Inc.
Baxter International Inc.
Invacare Corporation
Becton, Dickinson and Company
Masimo Corporation
Boston Scientific Corporation Plc
Medtronic plc
Zimmer Biomet Holdings Inc
Nevro Corp.
Cantel Medical Corp.
NuVasive, Inc.
CONMED Corporation
ResMed Inc.
DexCom, Inc.
Smith & Nephew plc
Edwards Lifesciences Corporation
Integer Holdings Corporation
Insulet Corporation
Natus Medical Incorporated
Stryker Corporation
Haemonetics Corporation
Globus Medical, Inc.
Teleflex Incorporated
Hill-Rom Holdings, Inc.
Varian Medical Systems, Inc
Hologic, Inc.
Wright Medical Group N.V.
Integra LifeSciences Holdings Corp.

The following parameters will be used to determine rTSR for the three-year period ending 31 December 2021:

- Stock Price: 30 trading-day average closing prices as of the beginning and end of the performance period;
- Dividend Treatment: Dividend reinvestment approach (using ex-dividend date);
- Relative Performance Measurement:
- Calculate cumulative TSR for LivaNova and each of the benchmark companies,
- Compute LivaNova's discrete percentile rank, which is inclusive of LivaNova's TSR (Excel: ***PERCENTRANK*** function);
- Measured against benchmark group at the beginning of the performance period,
- Companies acquired or delisted during the performance period are excluded.

Given that adjusted net sales and adjusted net profit are key measures of company value, the Board considers the actual target amounts of both objectives to be too commercially sensitive for disclosure at this time. The Committee will disclose the target amounts after the publication of the Company's 2021 financial results.

2019 Interest Schemes Awards (audited)

Director	Face Value of Award ($)[1]	No. of Shares Subject to the Award	Closing Share Price on Date of Award (For Face Value Calculation) ($)	Expiry of Performance Period	Performance Criteria
Damien McDonald	1,499,984	15,424	97.25	31 December 2021	Relative Total Shareholder Return Performance Stock Unit
Damien McDonald	1,499,984	15,424	97.25	31 December 2021	Cumulative Adjusted Free Cash Flow PSU
Damien McDonald	1,249,954	12,853	97.25	N/A	Time-Based Vesting (RSUs)
Damien McDonald	1,249,978	39,357	97.25	N/A	Time-Based Vesting (SARs)
Damien McDonald	Total Face Value 2019 Award				$5,499,900
Daniel J. Moore	184,908	2,524	73.26	N/A	Time-Based Vesting (RSUs)
Hugh Morrison	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
Alfred J. Novak	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
Arthur L. Rosenthal	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
Francesco Bianchi	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
Sharon O'Kane	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
Andrea Saia	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
William Kozy	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)
Stacy Enxing Seng	109,890	1,500	73.26	N/A	Time-Based Vesting (RSUs)

(1) Face Value of RSUs award calculated using the closing market price of the LivaNova share on the Nasdaq at the date of grant ($97.25). Face Value of SARs award calculated by the Black-Scholes value based on the closing market price of an ordinary share of our stock on Nasdaq as of the grant date ($31.76).

Payments made to past directors (audited)

The Company made payments to André-Michel Ballester and Brian Sheridan who were no longer directors in 2019.

The Company paid Mr. Ballester a total of $49,416.03 in 2019 for litigation services. In September 2019, Mr. Ballester exercised SARs granted on 19 October 2015; these values are not reported as they represent 2015 remuneration.

In March 2019, Mr. Sheridan had an RSU vesting, the total fair market value for which was $494,082.96. The total value of the proceeds after $224,936.77 taxes was $269,146.19.

Payments made for loss of office (audited)

The Company made no payments for loss of office in the period under review.

Executive and Non-Executive Directors' Shareholdings (audited)

To align the interests of our Executive and Non-Executive Directors to those of our shareholders, they are required to maintain significant shareholding of shares in LivaNova Plc on a voluntary basis. The directors believe that meaningful ownership of equity in the Company is an essential element in demonstrating the commitment of its leadership to its primary task of creating value for its shareholders. To further this belief, equity award programs have been established as part of the overall compensation plans for both officers and directors. Until the relevant Stock Ownership Threshold is achieved by the chief executive officer and each non-executive director, each individual should retain a minimum of the value equal to 100% of the net shares received (i.e., following tax withholding) following each vesting until the relevant Stock Ownership Threshold has been achieved. Following achievement of the relevant Stock Ownership Threshold, shares in excess of such amount may be sold, subject to the Company's Insider Trading Policy then in effect.

Shareholding Guidelines

Level	Stock Ownership Threshold
Executive Director (Chief Executive Officer)	5 x base salary
Non Executive Directors	5 x yearly Board annual cash retainer

Share Ownership as of 31 December 2019

Director	Ordinary Shares	Ordinary Shares Underlying Stock Options[4]	Ordinary Shares Underlying SARs	Ordinary Shares Underlying RSUs
Damien McDonald[1]	66,016	–	211,539	131,054
Daniel J. Moore[2]	30,938	103,249	–	2,524
Hugh Morrison[3]	1,520	–	–	1,500
Alfred J. Novak	9,570	–	–	1,500
Arthur L. Rosenthal	18,615	–	–	1,500
Francesco Bianchi	1,520	–	–	1,500
Stacy Enxing Seng	–	–	–	1,500
Sharon O'Kane	4,228	–	–	1,500
Andrea Saia	2,998	–	–	1,500
William Kozy	1,576	–	–	1,500

(1) Of the 131,054 shares underlying RSUs, the vesting of 56,306 RSUs were subject to the achievement of performance conditions.

(2) The 30,938 Ordinary Shares include 2,586 Ordinary Shares held by DJM Family Partnership Ltd. of which Mr. Moore has indirect ownership. The 103,249 Ordinary Shares underlying Stock Options are 46,626 stock options with an exercise price of $51.90 and 56,623 Stock options with an exercise price of $57.39 granted respectively on 15 June 2013 and 15 June 2014 by Cyberonics, Inc. and then converted in LivaNova Stock options on 19 October 2015, date of the merger of Sorin S.p.a. and Cyberonics, Inc. that resulted into LivaNova PLC.

(3) 1,520 shares owned by Mr. Morrison are pledged as collateral in connection with a margin account.

(4) Dan Moore is the only Non-Executive director who holds Options, which have already vested and are exercisable. However, none of the 103,249 Options were exercised during the 2019 financial year.

As of 31 December 2019, three of our board members, Daniel J. Moore, Alfred J. Novak and Arthur L. Rosenthal, have achieved the Stock Ownership Threshold, including our chief executive officer, Damien McDonald.

Relative importance of spend on pay

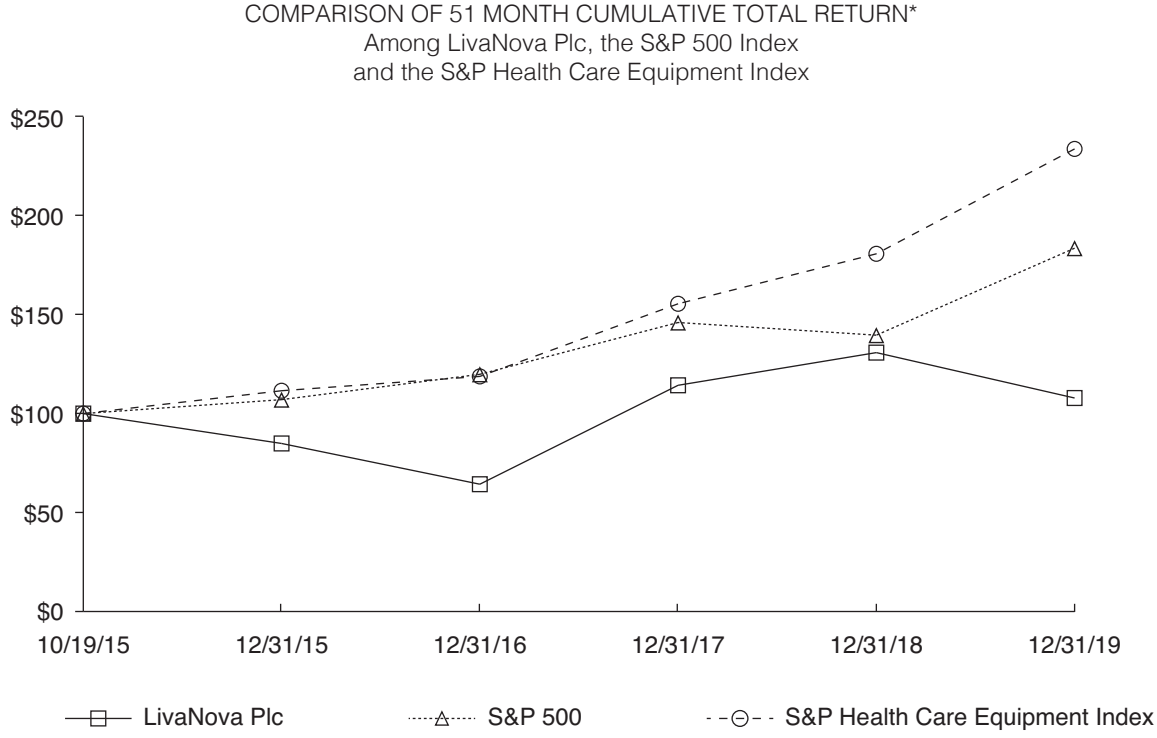
The following table sets out the total amounts spent in the year ended 31 December 2019 and the year ended 31 December 2018 on remuneration paid to employees and distributions to shareholders.

$ thousands	Year Ended 31 December 2019	Year Ended 31 December 2018	% change
Employee remuneration	454,060	459,560	(1)%
Share buybacks	0	50,000	N/A
Dividend	Nil	Nil	–

Total shareholder return

Performance graph

The graph below shows the Company's performance measured through total shareholder return on a holding of $100 in the Company's shares between 19 October 2015 and 31 December 2019, compared to the S&P 500 Index and the S&P Healthcare Equipment Index. LivaNova selected these indices as it felt they provided both a broader market benchmark together with a more proximate industry benchmark.



* *$100 invested on 10/19/15 in stock or 9/30/15 in index, including reinvestment of dividends. Fiscal year ending December 31.*

CEO Total Compensation

	Year Ended 31 December 2019	Year Ended 31 December 2018	Year Ended 31 December 2017	Year Ended 31 December 2016[3]
Total single-figure remuneration (thousands $)	4,077	9,499	4,065	1,968
Annual bonus award (as a % of maximum)[1]	25	60	57	53.3
Vesting of long term performance awards (as a % of maximum)[2]	–	100	0	25

(1) In 2018, Damien McDonald received a pay-out of 105% which represents 60% of the maximum payable which was set at 175% of his base salary. In 2019 payout of 25% which represents 15% of the maximum payable which was set at 171%.

(2) In 2018, 13,353 performance-based RSUs vested during the financial year ended 31 December 2018 which represents 100% of the maximum opportunity for vesting in the 2018 financial year. This is explained under note (4) and (5) of the Single Figure table. No performance awards vested in 2019, the next performance award vesting is scheduled for 2020 for the performance awards granted in 2018.

(3) The figures relating to the CEO total compensation for year ended 31 December 2016 are in respect to former CEO, Andre-Michel Ballester, who resigned with effect from 31 December 2016.

2020 Base Salary and STIP

On 30 March 2020, the Compensation Committee approved adjustments to the base salaries and Target percentages of Base Salary under the 2020 STIP, effective as of 1 April 2020 as set forth below:

	2020 Base Salary ($)	Increase from 2019	2020 STIP at Target	Change from 2019
Damien McDonald	979,862	5%	125%	–

(1) For salary amounts, we used an exchange rate of $1.275738014 per British Pound, each of which reflects the applicable period average published rate from our BOPC Accounting System between 1 January 2019 and 31 December 2019. The BOPC Accounting System uses Bloomberg as a source to obtain exchange rates.

On 30 March 2020, the Compensation Committee also approved the 2020 STIP.

	2020 STIP Minimum (Percentage of Base Salary)	2020 STIP Maximum (Percentage of Target)
Damien McDonald	0%	171%

(1) Per the Remuneration Policy, the maximum bonus opportunity is 200% of base salary.

Payment of the target bonus amount is conditioned on achievement of certain financial and non-financial objectives. If the threshold for a financial objective is achieved, then the funding for that objective is scaled down or up for underachievement or overachievement, respectively, of the objective, as follows:

Percent Achievement of Sales Objective	Percent Achievement of Income Objective	Percent Funding for Objective
>110%	>110%	175%
110%	110%	175%
	Linear Interpolation: 1:7.50	
100%	100%	100%
	Linear Interpolation: 1:16.67 (Sales) 1.50 (Income)	
97%	90%	50%
<97%	<90%	0%

The non-financial objectives comprise product development projects that will drive revenue generation beyond 2020. The Design projects include two product development projects, each valued at 5% if the objectives are achieved within defined timelines. The Clinical and Regulatory projects are enrollment objectives for three clinical studies, one of which is valued at 10% and other two of which are valued at 5%. The achievement of one of these last two clinical study is alternative to a regulatory submission objective. The Commercialization objective is a commercial launch objective valued at 10%. Together, the six product development project objectives represent 25% of each target bonus, but total 40% if all objectives are achieved, representing a potential overachievement of 15%.

	Non-Financial Objectives		
	Design	Clinical and Regulatory	Commercialization
Damien McDonald	10%	20%	10%

The financial objectives:

	Financial Objectives	
	Net Sales	Adjusted Net Income
Mr. McDonald	45%	30%

"Adjusted Net Sales" is defined as our net sales for 2020 at budgeted currency exchange rates, excluding net sales from any acquisitions in 2020.

"Adjusted Net Income" is defined as our non-GAAP net income at reported currency exchange rates, after adjustments for the effects of acquisitions, divestitures, restructuring, integration, purchase price allocation and intangible amortization, special items, including 3T Heater Cooler remediation and significant and unusual litigation, including 3T Heater Cooler litigation, and equity compensation.

Given that adjusted net sales and adjusted net profit are key measures of company value, the Board considers the actual target amounts of both objectives to be too commercially sensitive for disclosure at this time. The Committee will disclose the target amounts after the publication of the Company's 2020 financial results.

	Target Bonus as Percentage of Salary
Adjusted net sales	45%
Adjusted net income	30%
Non-Financial Objectives	25%
	100%

2020 LTIP

On 30 March 2020, the Compensation Committee approved our 2020 LTIP. Pursuant to the 2020 LTIP, the Committee approved an equity award value for each of four award vehicles with an effective date of 30 March 2020, as follows:

	RSUs ($)	SARs ($)	rTSR PSUs ($)	FCF PSUs ($)
Damien McDonald	1,500,000	1,250,000	1,500,000	1,500,000

Service-Based Elements:

RSUs

Mr. McDonald received an award of service-based RSUs vesting in equal or substantially equal amounts on each of the first four anniversaries of the grant date. The Committee determined the number of RSUs awarded by dividing the award value by the most recent closing price of an ordinary share of our stock on Nasdaq as of the grant date and rounding down to the nearest whole unit.

SARs

Mr. McDonald received an award of SARs vesting in equal or substantially equal amounts on each of the first four anniversaries of the grant date. The Committee determined the number of SARs awarded by dividing the award value by the Black-Scholes value of a SAR based on the most recent closing price of an ordinary share of our stock on Nasdaq as of the grant date and rounding down to the nearest whole right.

Performance-Based Elements:

rTSR PSUs

Mr. McDonald received an award of PSUs subject to a three-year rTSR market condition. At the end of calendar year 2022, our TSR for the three-year period 2020 through 2022 will be compared to the TSR for a group of 30 companies (the "2020 rTSR Comparator Group") selected by the Committee's compensation consultant, Pearl Meyer, and the number of shares of our stock actually delivered will be determined by the following chart, with linear interpolation applied between specified levels.

TSR Performance Percentile Rank	Percent Funding for Objective
≥90th	200%
80th	150%
50th	100%
30th	40%
<30th	0%

The following companies comprise the 2020 rTSR Comparator Group:

ABIOMED, Inc.
Baxter International Inc.
Becton, Dickinson and Company
Boston Scientific Corporation
Cantel Medical Corp.
CONMED Corporation
DexCom, Inc.
Edwards Lifesciences Corporation
Globus Medical, Inc.
Haemonetics Corporation
Hill-Rom Holdings, Inc.
Hologic, Inc.
Insulet Corporation
Integer Holdings Corporation
Integra LifeSciences Holdings Corp.
Intuitive Surgical, Inc.
Invacare Corporation
Masimo Corporation
Medtronic plc
Natus Medical Incorporated
Nevro Corp.
NuVasive, Inc.
Penumbra Inc.
ResMed Inc.
Smith & Nephew plc
Stryker Corporation
Teleflex Incorporated
Varian Medical Systems, Inc.
Wright Medical Group N.V.
Zimmer Biomet Holdings, Inc.

Adjusted Free Cash Flow PSUs

Mr. McDonald received an award of PSUs subject to achievement of a three-year cumulative adjusted FCF Target. At the end of calendar year 2022, cumulative adjusted free cash flow for the period 2020 through 2022 will be compared to the FCF Target, and the number of shares of our stock actually delivered to the participants will be determined by the following chart, with linear interpolation applied between specified levels:

FCF Achievement Relative to FCF Target	Percent Funding for Objective
≥150%	200%
125%	150%
100%	100%
60%	20%
<60%	0%

Given that adjusted net sales and adjusted net profit are key measures of company value, the Board considers the actual target amounts of both objectives to be too commercially sensitive for disclosure at this time. The Committee will disclose the target amounts after the publication of the Company's 2022 financial results.

Role of the Compensation Committee

Members

The Chairman of the Compensation Committee is Arthur L. Rosenthal, Ph.D., and the other members of the Compensation Committee are Alfred J. Novak and Francesco Bianchi and Stacy Enxing Seng, all of whom are non-executive directors that the Company considers to be independent. All have served on the Committee since 19 October 2015 except for Stacy Enxing Seng who joined in 2019. The Committee's terms of reference are available on the Company's website at *www.livanova.com*.

The Compensation Committee has authority to determine and approve the corporate goals and objectives applicable to the compensation of the CEO and to assess the CEO's performance annually in light of these goals and objectives and then to determine and approve the CEO's compensation level based on this evaluation. The CEO is not present during discussions about his own compensation. The Compensation Committee also has authority to determine and approve the compensation of all other executive officers. The committee is also entrusted with reviewing and approving incentive plans and equity-based plans that apply on a broader basis but which could also apply to the CEO and other executive officers.

Role of Compensation Consultant

The Compensation Committee has the sole authority to retain and terminate a compensation consultant to assist with its responsibilities, as well as the sole authority to approve the consultant's fees, which we then pay. Our executive officers do not discuss compensation matters with the Compensation Committee's consultant, except as needed to respond to questions from

the consultant or to understand the data underlying the consultant's reports. The Compensation Committee's consultant does not provide other services for us or any of our executive officers or other employees. When making compensation decisions in 2019, our Compensation Committee considered advice and data provided by Pearl Meyer & Partners, LLC.

The Compensation Committee's consultant does not provide services for the Company or any of our officers. Since 2016, the Compensation Committee has engaged the services of Pearl Meyer & Partners, LLC, an experienced compensation consulting firm, to advise the committee on executive compensation matters. The Compensation Committee selected Pearl Meyer based on its global expertise. The Committee considered the following factors and determined Pearl Meyer to be an independent and conflict-free advisor to the Company:

- the provision of other services to the Company by the advisor's employer;
- the amount of fees received from the Company by the advisor's employer, as a percentage of the total revenue of the advisor's employer;
- the policies and procedures of the advisor's employer that are designed to prevent conflicts of interest;
- any business or personal relationship of the advisor with a member of the Committee;
- any stock of the Company owned by the advisor; and
- any business or personal relationship of the advisor or the advisor's employer with an executive officer of the Company.

In 2019, Pearl Meyer provided support on the following projects:

- director compensation analysis and benchmarking
- peer group analysis
- executive equity compensation analysis

The Company paid Pearl Meyer a total of $97,897 for the services indicated above for 2019, computed on the basis of Pearl Meyer's hourly rates for services rendered, multiplied by the number of hours required to generate the reports and including administrative service fees.

Service Contracts

Our non-executive directors do not have service contracts, however they are elected for a one-year term. Our one executive director does have a service contract but there is no anticipated termination date.

Statement of Voting at Prior AGM

At the 2019 AGM held on 18 June 2019, votes on the advisory vote to approve the directors' remuneration report were as follows:

To approve, on an advisory basis, the UK directors' remuneration report in the form set out in the Company's UK Annual Report and Accounts ("UK Annual Report") for the period ended 31 December 2018

Votes	For	Against
	39,139,244	1,822,538
Percentages %	95.55	4.45

LivaNova's Remuneration Policy was last approved by shareholders at the 2019 AGM and is available at *www.livanova.com.*.

To approve the directors' Remuneration Policy

Votes	For	Against
	39,323,750	1,618,032
Percentages %	96.05	3.95

This Remuneration Report was approved by the Board of Directors on 8 May 2020

Arthur Rosenthal, Ph.D.
Chairman of the Compensation Committee

FINANCIAL STATEMENTS

Independent auditors' report to the members of LivaNova PLC

Report on the audit of the financial statements

Opinion

In our opinion:

- LivaNova PLC's Group financial statements and Company financial statements (the "financial statements") give a true and fair view of the state of the Group's and of the Company's affairs as at 31 December 2019 and of the Group's and Company's loss and the Group's cash flows for the year then ended;
- the Group financial statements have been properly prepared in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union;
- the Company financial statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 "Reduced Disclosure Framework", and applicable law); and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements, included within the Annual Report, which comprise: the Consolidated and Company Balance Sheets as at 31 December 2019; the Consolidated and Company Statements of (Loss) Income, the Consolidated and Company Statements of Comprehensive Income, the Consolidated Statement of Cash Flows, and the Consolidated and Company Statements of Changes in Equity for the year then ended; and the notes to the financial statements, which include a description of the significant accounting policies.

Basis for opinion

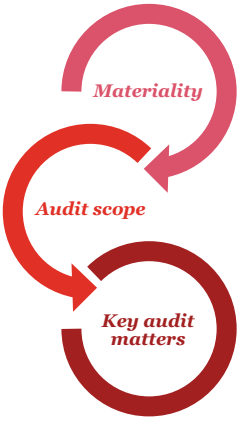
We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the Group in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard, as applicable to listed entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

Our audit approach

Overview



Materiality

- Overall Group materiality: $5 million (2018: $6.7 million), based on approximately 5% of the equally-weighted three-year average adjusted income from continuing operations before tax and share of loss from equity accounted investments. In calculating adjusted income from continuing operations before tax and share of loss from equity accounted investments, the following exceptional items and other non-recurring items were excluded:
  - Impairment of goodwill, intangible assets, and plant, property and equipment (2019: $604 million; 2018 and 2017: nil);
  - Merger and integration costs and restructuring costs (2019: $36 million; 2018: $40 million; 2017: $33 million);
  - Litigation provision, net (2019: credit of $1 million; 2018: $294 million; 2017: nil);
  - Product remediation expenses, non-recurring legal expenses related to the 3T litigation, and contingent consideration (2019: $17 million; 2018: $29 million; 2017: $15 million);
  - Acquisition costs (2019: credit of $1 million; 2018: $11 million; 2017: nil);
  - Gain on acquisitions (2019: nil; 2018: $4 million; 2017: $19 million);
  - CRM disposal costs (2019: nil; 2018: $4 million; 2017: nil); and
  - Acquisition-related inventory adjustments (2019: nil; 2018: $8 million; 2017: nil).
- Overall Company materiality: $34 million (2018: $35 million), based on approximately 1% of Total assets.

Audit scope

- The Group operates its two principal business franchises through a legal entity structure across over 100 countries, which are managed as a number of components. Our audit focuses on 13 components, over which we performed either a full scope audit or specified audit procedures on certain balances or transactions.
- The components where we conducted audit procedures, together with work performed at corporate functions and over consolidation adjustments, accounted for approximately 84% of the Group's net sales and 89% of the Group's statutory loss from continuing operations before tax.

Key audit matters

- Carrying value of goodwill and in-progress research and development (Key Audit Matter for Group)
- 3T Heater-Cooler litigation provision (Key Audit Matter for Group)
- Going concern and impairment consideration relating to COVID-19 (Key Audit Matter for Group and Company)
- Carrying value of investments in subsidiaries (Key Audit Matter for Company)

The scope of our audit

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we looked at where the Directors made subjective judgements, for example in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the Directors that represented a risk of material misstatement due to fraud.

Key audit matters

Key audit matters are those matters that, in the auditors' professional judgement, were of most significance in the audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. This is not a complete list of all risks identified by our audit.

Key audit matter

Carrying value of goodwill and in-progress research and development (Group)

Refer to Notes 2 and 11 in the consolidated financial statements

The Group's indefinite-lived assets consist of goodwill of $582.3 million (2018:$960.4 million) and acquired in-progress research and development ("IPR&D") of $115.8 million (2018: $358.8 million) in the Consolidated Balance Sheet as at 31 December 2019. Indefinite-lived assets must be tested for impairment on at least an annual basis. Management tests goodwill and IPR&D for impairment between annual tests if an event occurs or circumstances change that would indicate the carrying amount may be impaired.

The carrying values of the goodwill and IPR&D assets are material and their recoverable amount is based on subjective estimates about the future performance of the underlying cash generating units ("CGUs") and IPR&D. Key assumptions include revenue growth rates, terminal growth rates, and discount rates, in addition to the timing and probability of commercialisation for IPR&D.

Work was focused principally on the carrying value of the CGUs and IPR&D most at risk of impairment and where the greatest extent of estimation was required, being the Heart Valves CGU and ImThera Medical Inc. ("ImThera") IPR&D.

During the second quarter of 2019, management determined that there would be a delay in the estimated commercialisation date of the Group's obstructive sleep apnea product currently under development. This delay constituted a triggering event that required evaluation of the IPR&D asset arising from the ImThera acquisition for impairment. Based on the assessment performed, management determined that the IPR&D asset was impaired and, as a result, recorded an impairment of $50.3 million.

Based on the goodwill impairment assessment performed, management determined that the Heart Valves CGU was impaired and, accordingly, fully impaired goodwill of $335.0 million and impaired customer relationships and developed technology intangibles by $51.7 million and $30.2 million, respectively.

How our audit addressed the key audit matter

Our audit procedures included evaluating and challenging the appropriateness of the impairment models and reasonableness of the assumptions used, focusing in particular on the Heart Valves Goodwill CGU and ImThera IPR&D.

We evaluated future cash flow forecasts and the process by which they were drawn up. This included:

- Comparing the future cash flow forecasts used to the latest Board approved forecasts;
- Testing the mechanics and mathematical integrity of management's impairment models;
- Performing look back assessments to consider the historic growth trends and management's forecasting reliability; and
- Evaluating and reperforming management's sensitivity analysis to understand the impact of reasonably possible changes to key assumptions.

We tested key assumptions utilised in the impairment assessments, including:

- revenue and gross margin growth rates, terminal growth rate, and discount rate for the Heart Valves CGU, by considering the current and past performance of the CGU, consistency with third-party industry data, and whether the assumptions were consistent with evidence obtained in other areas of the audit; and
- revenue growth rate, timing and probability of commercialisation, terminal growth rate, and the discount rate for the ImThera IPR&D, by considering the historical results of peer companies, consistency with third-party industry data, and whether the assumptions were consistent with evidence obtained in other areas of the audit.

Experts with specialised skills and knowledge were used to assist in evaluating the appropriateness of the valuation methodology and the reasonableness of certain key assumptions, including the discount rate.

As a result of our work, we considered the gross impairment identified of $416.9 million in relation to the Heart Valves CGU and $50.3 million impairment in relation to the ImThera IPR&D to be appropriate and that the remaining carrying values are supportable. For the Heart Valves CGU, we tested that the allocation of the impairment to assets within the CGU was appropriate and in accordance with *IAS 36 Impairment of Assets*.

Key audit matter	*How our audit addressed the key audit matter*
	We also assessed the appropriateness of the related disclosures in Note 11 of the Group financial statements, including the sensitivities provided in respect of the Heart Valves CGU and ImThera IPR&D, and considered them to be reasonable. We noted no material exceptions through performing these procedures.
3T Heater-Cooler litigation provision (Group) *Refer to Note 21 and Note 26 in the consolidated financial statements* The Group recognises a material litigation provision liability for the resolution of pending litigation when the payment is probable and the amount can be estimated reliably. The litigation provision liability is adjusted periodically as additional information becomes available. The Group is currently involved in litigation involving the 3T Heater-Cooler device ("3T"), the outcome of which is uncertain. In the fourth quarter of 2018, the Group recorded a $294.1 million liability, in part related to the announcement of a $225 million settlement framework that provides for a comprehensive resolution of the personal injury cases pending in the multi-district litigation in U.S. federal court, the related class action pending in federal court, as well as certain cases in state courts across the United States. Cases covered by the settlement are being dismissed as amounts are disbursed to individual plaintiffs from the qualified settlement fund. In the fourth quarter of 2019, the Group recorded an additional liability of $33.2 million due to new information obtained, including but not limited to: the nature and quantity of filed and unfiled claims; certain settlement discussions with plaintiffs' counsel; and the current stage of litigation in the remaining filed and unfiled claims. As at 31 December 2019, the litigation provision liability was $170.4 million.	We gained a detailed understanding of the status of the 3T litigation matters through discussions with management, internal counsel, and external counsel. We also obtained and evaluated the letters of audit inquiry with internal and external legal counsel. For the settled amounts, we vouched the settlement payments of $156.9 million made in 2019, as well as the $90 million multi-district litigation final settlement payment made in January 2020. For the provision for unsettled claims, we evaluated management's estimate of the likely outcome and compared that to the provision by performing the following procedures: • Assessed the completeness of the population of claims; • Evaluated the reasonableness of management's assessment regarding whether an unfavourable outcome is reasonably possible or probable and reliably estimable, by gaining an understanding of each individual case through inquiries with internal and external counsel; and • Reviewed recent comparable verdicts or settlements within each respective country, considering country specific laws and processes, as well as considered case-specific information through correspondence with external counsel. Additionally, we reviewed the adequacy and appropriateness of the disclosures within the financial statements. We noted no material exceptions through performing these procedures.
Going concern and impairment consideration relating to COVID-19 (Group and Company) *Refer to Note 2 and Note 35 in the consolidated financial statements, and Note 2 and Note 21 in the Company financial statements* There is an unprecedented level of economic uncertainty arising from the COVID-19 pandemic. Given the nature of pandemic, there is uncertainty regarding the length of time that COVID-19 will restrict the volume of elective surgeries, which is out of the control of the Group, and consequently the demand for the Group's products. As COVID-19 was not declared a pandemic as at 31 December 2019, its impact is considered to be a non-adjusting post balance sheet event under *IAS 10 Events after the Reporting Date*.	We obtained an understanding of the process performed by management to assess the impact of COVID-19. We performed the following procedures on the Directors' assessment: • agreed the underlying cash flow projections to revised forecasts approved by the Board of Directors, assessed how these forecasts are compiled, and assessed the accuracy of forecasts by reviewing third-party industry reports and applying appropriate sensitivities to the growth projections, where required; • understood and assessed the reasonableness of management's plans to mitigate a reduction in sales, including cost savings, reductions in capital expenditure and utilisation of Coronavirus Aid, Relief, and Economic Security (CARES) Act tax relief;

Key audit matter	*How our audit addressed the key audit matter*
The pandemic has impacted and may further impact the Group's and Company's operations and customer demand. The extent to which COVID-19 impacts the Group's business and results of operations will depend on future developments, which are highly uncertain. This includes, but is not limited to: the duration, spread, severity, and impact of the virus; the effects on the Group's customers, suppliers, and vendors; the actions and stimulus measures adopted by governments; and to what extent, and timing of when, normal economic and operating conditions can resume. The Board of Directors have considered the potential impact of COVID-19 on the current and future operations of the Group and Company. In doing so, they have made estimates and judgements, with a particular focus on the Group's and Company's ability to continue as a going concern for a period of at least twelve months from the issuance date of these financial statements. In order to consider the implications for the going concern and carrying value assessments, management has updated its cash flow forecasts to reflect the best estimate of the future impact of COVID-19 as well as developed downside scenario forecasts.	• reviewed the terms of the amended covenant agreements, and assessed whether the calculations of forecast covenant ratios were consistent with the agreements; • assessed whether a severe but plausible downside scenario could cause a breach in covenants during the period under review. Having identified that it could, we understood management's plan to implement further cost reductions within their control which would enable the Group and Company to remain within the covenant limits. We assessed whether management had the ability to implement these cost savings if needed within the period under review; • checked the mathematical accuracy of the spreadsheet used to model future financial performance and determined in what circumstances there was a risk that the covenants may be breached or that additional financing may be required; and • reviewed disclosures in the Annual Report regarding the assessment of going concern. Refer to 'Conclusions relating to going concern'. We also reviewed the post balance sheet impairment trigger assessments. Our procedures included: • reviewing the assessments for the various classes of current and non-current assets based on our understanding of the operations of the Group and Company and impact of COVID-19; • evaluating the Directors' sensitivity analyses to assess the recoverable amount of goodwill and investments in subsidiaries for impairment triggers, including assessing the consistency with the revised forecasts and assumptions used in the going concern model; and • checking the mathematical accuracy of the spreadsheets used to assess the goodwill CGUs and investments in subsidiaries for impairment triggers. Based on the work performed, we consider the disclosures made by the Board of Directors in respect of the potential impact of COVID-19, a non-adjusting post balance sheet event, to be appropriate in light of the extent of uncertainty regarding the impact of COVID-19. Based on our procedures and the information available at the time of the Directors' approval of the financial statements, we have not identified any matters to report with respect to management's and the Directors' consideration of the impact of COVID-19 on the current and future operations of the Group and Company.

Key audit matter

Carrying value of investments in subsidiaries (Company)

Refer to Note 5 in the Company financial statements

Investments in subsidiaries of $2,866 million (2018: $3,029 million) are accounted for at cost less impairment in the Company's Balance Sheet at 31 December 2019.

Investments in subsidiaries are assessed for impairment if impairment indicators exist. If such indicators exist, the recoverable amounts of the investments in subsidiaries are estimated in order to determine the extent of the impairment loss, if any. Any such impairment loss is recognised in the Company Statement of (Loss) Income. Accordingly, the investments are material, and the assessment of their carrying value is judgemental.

Management assessed each investment individually for impairment. An impairment indicator was determined to be present if the carrying value of the investment exceeded the subsidiary's net assets. Where an indicator was identified, management determined whether the carrying value of the investment can be supported by the recoverable amount, being the higher of fair value less cost of disposal or value in use (VIU) where the net present value of future cash flows are estimated based on the continued use of the asset in the business. Management performed VIU calculations using discounted cash flow analyses developed as part of the Group goodwill impairment assessment. The key assumptions included in those estimates include cash flow projections, revenue growth rates, terminal growth rates, and discount rates.

During the year, an impairment charge of $150.1 million was recognised in relation to the Company's investments in LIVN UK Holdco Limited. This was due to a dividend from LIVN UK Holdco Limited which reduced the value of the Company's net assets.

How our audit addressed the key audit matter

For each investment in subsidiary, we evaluated management's assessment of whether any indicators of impairment existed. Where an investment's carrying value was greater than the net assets of the subsidiary, which was determined to be an impairment indicator, we reviewed the value in use model prepared by management to support the carrying value of the investment held.

The substantive audit procedures we performed included:

- verifying the mathematical integrity of the impairment model; and
- evaluating the appropriateness of key assumptions used in the model, including the cash flow projections, revenue growth rates, terminal growth rates, and discount rates, in conjunction with our goodwill impairment testing.

Where applicable, we have performed an independent sensitivity analysis to understand the impact of reasonable changes in management's assumptions on the available headroom.

As a result of our work, we considered the $150.1 million impairment charge to be appropriate and that the remaining carrying values of the investments in subsidiaries held by the Company to be supportable.

We have also assessed management's disclosures within the Company financial statements and consider them to be appropriate.

We noted no material exceptions through performing these procedures.

How we tailored the audit scope

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the structure of the Group and the Company, the accounting processes and controls, and the industry in which they operate.

We conducted full scope audits at two key components: the US and Italy. In addition, in order to achieve the required coverage, we conducted specified procedures at an additional 11 components over key financial statement line items, including net sales, cost of sales, product remediation, selling, general and administrative expenses, research and development, inventory, trade receivables, trade payables and cash and cash equivalents.

Taken together, the components where we conducted audit procedures, together with work performed at corporate functions and over consolidation adjustments, accounted for approximately 84% of the Group's net sales and 89% of the Group's statutory loss from continuing operations before tax.

Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

	Group financial statements	*Company financial statements*
Overall materiality	$5 million (2018: $6.7 million).	$34 million (2018: $35 million).
How we determined it	Approximately 5% of the equally-weighted three-year average adjusted income from continuing operations before tax and share of loss from equity accounted investments. In calculating adjusted income from continuing operations before tax and share of loss from equity accounted investments, the following exceptional items and other non-recurring items were excluded: • Impairment of goodwill, intangible assets, and plant, property and equipment (2019: $604 million; 2018 and 2017: nil); • Merger and integration costs and restructuring costs (2019: $36 million; 2018: $40 million; 2017: $33 million); • Litigation provision, net (2019: credit of $1 million; 2018: $294 million; 2017: nil); • Product remediation expenses, non-recurring legal expenses related to the 3T litigation, and contingent consideration (2019: $17 million; 2018: $29 million; 2017: $15 million); • Acquisition costs (2019: credit of $1 million; 2018: $11 million; 2017: nil); • Gain on acquisitions (2019: nil; 2018: $4 million; 2017: $19 million); • CRM disposal costs (2019: nil; 2018: $4 million; 2017: nil); and • Acquisition-related inventory adjustments (2019: nil; 2018: $8 million; 2017: nil). (2018: Approximately 5% of the weighted three-year average adjusted income from continuing operations before tax and share of loss from equity accounted investments).	Approximately 1% of Total assets (2018: Approximately 1% of Total assets).
Rationale for benchmark applied	Adjusted income from continuing operations before tax and share of loss from equity accounted investments is the primary measure that is reported to shareholders and is the measure which the Directors consider best represents the underlying performance of the Group. We used an equally-weighted three-year average due to the volatility of the Group's adjusted income from continuing operations before tax and share of loss from equity accounted investments as a result of significant changes to the business following acquisitions, disposals, and restructuring.	As the Company's principal activity is to hold investments in subsidiaries, the Company is not profit-oriented. Therefore total assets are used as the benchmark. We have applied a 1% rule of thumb suggested by ISAs (UK) as the Company is a public interest entity.

For each component in the scope of our Group audit, we allocated a materiality that is less than our overall Group materiality. The range of materiality allocated across components was between $0.9 million and $4.5 million. Certain components were audited to a local statutory audit materiality that was also less than our overall Group materiality.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above $0.4 million (Group audit) (2018: $0.34 million) and $1.7 million (Company audit) (2018: $1.7 million) as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

Conclusions relating to going concern

We have nothing to report in respect of the following matters in relation to which ISAs (UK) require us to report to you where:

- the Directors' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the Directors have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the Group's and Company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the Group's and Company's ability to continue as a going concern.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The Directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic Report and Directors' Report, we also considered whether the disclosures required by the UK Companies Act 2006 have been included.

Based on the responsibilities described above and our work undertaken in the course of the audit, the Companies Act 2006 and ISAs (UK) require us also to report certain opinions and matters as described below.

Strategic Report and Directors' Report

In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic Report and Directors' Report for the year ended 31 December 2019 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements.

In light of the knowledge and understanding of the Group and Company and their environment obtained in the course of the audit, we did not identify any material misstatements in the Strategic Report and Directors' Report.

Directors' Remuneration

In our opinion, the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006.

Responsibilities for the financial statements and the audit

Responsibilities of the Directors for the financial statements

As explained more fully in the Statement of directors' responsibilities set out on pages 40 and 41, the Directors are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view. The Directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Directors either intend to liquidate the Group or the Company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of this report

This report, including the opinions, has been prepared for and only for the Company's members as a body in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

Other required reporting

Companies Act 2006 exception reporting

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not received all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the Company, or returns adequate for our audit have not been received from branches not visited by us; or
- certain disclosures of Directors' remuneration specified by law are not made; or
- the Company financial statements and the part of the Directors' Remuneration Report to be audited are not in agreement with the accounting records and returns.

We have no exceptions to report arising from this responsibility.

Jonathan Lambert (Senior Statutory Auditor)

for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
London
8 May 2020

LIVANOVA PLC AND SUBSIDIARIES
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LIVANOVA PLC AND SUBSIDIARIES

Consolidated Statement of (Loss) Income (In thousands, except per share amounts)

		Year Ended 31 December	
	Note	2019	2018
Net sales	28	$ 1,084,170	$ 1,106,961
Costs and expenses:			
Cost of sales	30	326,485	364,843
Product remediation		15,777	10,680
Selling, general and administrative	30	536,198	498,423
Research and development	30	164,161	154,039
Exceptional items	32	635,837	334,356
Operating loss from continuing operations		(594,288)	(255,380)
Finance income		803	847
Finance expense		(16,402)	(9,825)
Gain on acquisition	7	–	4,212
Foreign exchange and other losses		(571)	(1,925)
Share of loss from equity accounted investments		–	(644)
Loss from continuing operations before tax		(610,458)	(262,715)
Income tax benefit	25	51,227	72,030
Loss from continuing operations		(559,231)	(190,685)
Income (loss) from discontinued operations, net of tax	8	365	(9,954)
Loss attributable to owners of the parent		$ (558,866)	$ (200,639)
Basic loss per share:			
Continuing operations	27	$ (11.57)	$ (3.93)
Discontinued operations	27	0.01	(0.21)
		$ (11.56)	$ (4.14)
Diluted loss per share:			
Continuing operations	27	$ (11.57)	$ (3.93)
Discontinued operations	27	0.01	(0.21)
		$ (11.56)	$ (4.14)
Shares used in computing basic loss per share	27	48,349	48,497
Shares used in computing diluted loss per share	27	48,349	48,497

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES

Consolidated Statement of Comprehensive Income (In thousands)

		Year Ended 31 December	
	Note	2019	2018
Loss attributable to owners of the parent		$ (558,866)	$ (200,639)
Items of other comprehensive income (loss) that will subsequently be reclassified to profit or loss:			
Cash flow hedges for interest rate fluctuations	16	92	66
Tax impact		(22)	(17)
Cash flow hedges for exchange rate fluctuations	16	1,825	(99)
Tax impact		(438)	25
Foreign currency translation differences		3,608	(64,118)
Total items of other comprehensive income (loss) that will subsequently be reclassified to profit or loss		5,065	(64,143)
Items of other comprehensive (loss) income that will not subsequently be reclassified to profit or loss:			
Remeasurement of net assets for defined benefits		(1,337)	662
Tax impact		328	(190)
Total items of other comprehensive (loss) income that will not subsequently be reclassified to profit or loss		(1,009)	472
Total other comprehensive income (loss), net of taxes		4,056	(63,671)
Total comprehensive loss for the year, net of taxes attributable to owners of the parent		$ (554,810)	$ (264,310)
Total comprehensive income (loss) from discontinued operations for the year, net of taxes attributable to owners of the parent		365	(9,954)
Total comprehensive loss from continuing operations for the year, net of taxes attributable to owners of the parent		$ (555,175)	$ (254,356)

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES

Consolidated Balance Sheet (In thousands)

	Note	31 December 2019	31 December 2018
ASSETS			
Non-current assets			
Property, plant and equipment	10	$ 168,921	$ 180,352
Intangible assets	11	537,764	781,487
Goodwill	11	582,324	960,437
Right-of-use assets	19	55,194	–
Equity investments in associates	13	451	–
Financial assets	13	31,281	27,456
Deferred tax assets	25	76,151	70,581
Other assets		2,881	2,148
Total non-current assets		1,454,967	2,022,461
Current assets			
Inventories	14	164,154	153,535
Trade receivables	15	257,769	256,135
Other receivables	15	25,253	28,621
Derivative financial instruments	16	115	236
Other financial assets	13	3,236	714
Tax receivable		35,608	37,318
Cash and cash equivalents		61,137	47,204
Total current assets		547,272	523,763
Total assets		$ 2,002,239	$ 2,546,224
LIABILITIES AND EQUITY			
Equity			
Share capital		$ 76,257	$ 76,144
Group reconstruction reserve	17	1,729,764	1,729,764
Share premium		23,243	18,516
Treasury shares		(1,263)	(1,462)
Accumulated other comprehensive loss	17	(21,591)	(25,647)
Retained deficit		(824,411)	(287,921)
Total equity		$ 981,999	$ 1,509,394
Non-current liabilities			
Derivative financial instruments	16	$ 61	$ 329
Financial liabilities	18	260,103	139,538
Contingent consideration	21	114,396	161,381
Litigation provision liability	21	24,378	132,210
Other liabilities	20	9,212	9,680
Provisions	21	10,584	19,127
Long-term lease liabilities	19	46,218	–

	Note	31 December 2019	31 December 2018
Provision for employee severance indemnities and other employee benefit provisions	24	23,261	21,991
Deferred taxes liabilities	25	18,182	55,826
Total non-current liabilities		506,395	540,082
Current liabilities			
Trade payables		85,038	75,182
Other payables	22	140,427	151,789
Derivative financial instruments	16	3,173	5,063
Other financial liabilities	18	77,326	28,794
Current litigation provision liability	21	146,026	161,852
Provisions	21	37,820	51,538
Current lease liabilities	19	11,316	–
Tax payable		12,719	22,530
Total current liabilities		513,845	496,748
Total liabilities and equity		$ 2,002,239	$ 2,546,224

See accompanying notes to the consolidated financial statements

The financial statements on pages 67 to 137 were approved by the Board of Directors and were signed on its behalf on 8 May 2020 by:

DAMIEN MCDONALD
CHIEF EXECUTIVE OFFICER & DIRECTOR

Company Number: 09451374

LIVANOVA PLC AND SUBSIDIARIES

Consolidated Statement of Changes in Equity (In thousands)

	Note	Ordinary Number of Shares	Ordinary Share Capital	Group Reconstruction Reserve	Share Premium	Treasury Shares	Accumulated Other Comprehensive Income (Loss)	Retained Earnings (Deficit)	Total Equity
Balance at 31 December 2017		48,290	$74,750	$1,729,764	$14,485	$ (133)	$ 43,514	$ (45,273)	$1,817,107
Share-based compensation plans	23	110	147	–	4,031	558	–	1,861	6,597
Issuances of ordinary shares		1,423	1,887	–	–	(1,887)	–	–	–
Purchase of ordinary shares	17	(500)	(640)	–	–	–	–	(49,360)	(50,000)
Total transactions with owners recognised directly in shareholders' equity		1,033	1,394	–	4,031	(1,329)	–	(47,499)	(43,403)
Opening balance adjustment upon adoption of IFRS 9		–	–	–	–	–	(5,490)	5,490	–
Net loss		–	–	–	–	–	–	(200,639)	(200,639)
Other comprehensive loss	17	–	–	–	–	–	(63,671)	–	(63,671)
Total comprehensive loss for the year		–	–	–	–	–	(69,161)	(195,149)	(264,310)
Balance at 31 December 2018		49,323	76,144	1,729,764	18,516	(1,462)	(25,647)	(287,921)	1,509,394
Share-based compensation plans	23	88	113	–	4,727	199	–	22,376	27,415
Total transactions with owners recognised directly in shareholders' equity		88	113	–	4,727	199	–	22,376	27,415
Net loss		–	–	–	–	–	–	(558,866)	(558,866)
Other comprehensive income	17	–	–	–	–	–	4,056	–	4,056
Total comprehensive income (loss) for the year		–	–	–	–	–	4,056	(558,866)	(554,810)
Balance at 31 December 2019		49,411	$76,257	$1,729,764	$23,243	$(1,263)	$(21,591)	$(824,411)	$ 981,999

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES

Consolidated Statement of Cash Flows (In thousands)

	Note	Year Ended 31 December 2019	2018
Cash Flows From Operating Activities:			
Loss for the year		$(558,866)	$(200,639)
Non-cash items included in (loss) income:			
Depreciation and amortisation	10, 11	70,645	69,940
Depreciation of lease assets	19	13,054	–
Remeasurement of contingent consideration to fair value	21	(29,406)	(4,311)
Share-based compensation	23	37,219	32,853
Gain on acquisitions	7	–	(4,212)
Impairment of intangible assets	11	221,234	–
Impairment of goodwill	11	379,493	–
Amortisation on income taxes payable on intercompany transfers		2,575	13,370
Impairment of property, plant and equipment	10	3,207	567
Loss from equity accounted investments		–	1,855
Net finance expense		15,599	8,978
Income tax benefit		(51,227)	(72,670)
Other non-cash items		4,074	2,887
Changes in operating assets and liabilities:			
Accounts receivable, net		(5,321)	21,181
Inventories		(10,608)	(10,647)
Other current and non-current assets		(2,103)	(12,989)
Restructuring reserve		(6,747)	6,504
Litigation provision liability	21	(123,695)	294,061
Tax payable		(2,555)	2,651
Current and non-current liabilities		(16,353)	6,781
Cash (used in) provided by operations		(59,781)	156,160
Interest paid		(17,143)	(9,278)
Income taxes paid		(2,011)	(26,393)
Net cash (used in) provided by operating activities		(78,935)	120,489
Cash Flow From Investing Activities:			
Purchase of property, plant, equipment		(23,548)	(37,193)
Acquisitions, net of cash acquired	7	(10,750)	(279,691)
Payment of contingent consideration		(18,955)	–
Purchase of intangible assets		(4,432)	(804)
Proceeds from the sale of the CRM business franchise, net of cash disposed	8	–	186,682
Proceeds from asset sales		1,261	14,220
Purchases of investments		(2,500)	(3,770)
Other		(1,321)	–
Net cash used in investing activities		(60,245)	(120,556)

	Note	Year Ended 31 December 2019	2018
Cash Flows From Financing Activities:			
Change in short-term borrowing, net		(1,188)	(30,745)
Proceeds from short-term borrowing (maturities greater than 90 days)		–	240,000
Repayments of short-term borrowing (maturities greater than 90 days)		–	(260,000)
Proceeds from long-term debt obligations	18	197,160	103,570
Repayment of long-term debt obligations	18	(24,210)	(23,827)
Principal payments of lease liabilities		(12,207)	–
Payment of deferred consideration — acquisition of Caisson		–	(12,994)
Purchase of treasury shares		–	(50,000)
Proceeds from exercise of options for stock		372	4,178
Shares repurchased from employees for minimum tax withholding		(7,064)	(11,611)
Proceeds from share issuances under ESPP		4,468	–
Debt issuance costs		(3,795)	–
Other financial assets and liabilities		(207)	(919)
Net cash provided by (used in) financing activities		153,329	(42,348)
Effect of exchange rate changes on cash and cash equivalents		(216)	(3,996)
Net increase (decrease) in cash and cash equivalents		13,933	(46,411)
Cash and cash equivalents at beginning of year		47,204	93,615
Cash and cash equivalents at end of year		$ 61,137	$ 47,204

See accompanying notes to the consolidated financial statements

LIVANOVA PLC AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Nature of Operations

Company information

LivaNova PLC (collectively with its subsidiaries, the "Company," "LivaNova," "Group," "we" or "our") is a public limited company incorporated in the United Kingdom under the Companies Act 2006 (Registration number 09451374). The Company is domiciled in England and Wales in the United Kingdom and its registered address is 20 Eastbourne Terrace, London, W2 6LG, United Kingdom.

Background

LivaNova PLC was organized under the laws of England and Wales on 20 February 2015 for the purpose of facilitating the business combination of Cyberonics, Inc. ("Cyberonics"), a Delaware corporation and Sorin S.p.A. ("Sorin"), a joint stock company organized under the laws of Italy. 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 19 October 2015, at which time LivaNova's Ordinary Shares were listed for trading on the Nasdaq and on the London Stock Exchange as a standard listing under the trading symbol "LIVN." Upon the consummation of the business combination of Cyberonics and Sorin, the historical financial statements of Cyberonics became the Company's historical financial statements. On 23 February 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 4 April 2017. We continue to serve our shareholders through our listing on the Nasdaq.

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 cardiovascular disease 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 minimise healthcare costs.

Business franchises

LivaNova is comprised of two principal business franchises, which are also our operating segments: Cardiovascular 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 Preparation, Use of Accounting Estimates and Significant Accounting Policies

Basis of Preparation

The consolidated financial statements of LivaNova have been prepared on a going concern basis, in accordance with the Companies Act 2006 as applicable to companies using IFRS adopted by the European Union and interpretations issued by the IFRS Interpretations Committee. Accounting policies have been applied consistently, other than where new policies have been adopted.

A new strain of coronavirus (COVID-19) has spread to many countries in the world and the outbreak has been declared a pandemic by the World Health Organization. The U.S. Secretary of Health and Human Services has also declared a public health emergency in the United States in response to the outbreak. Considerable uncertainty still surrounds the COVID-19 virus and its potential effects, and the extent of and effectiveness of responses taken on international, national and local levels. Measures taken to limit the impact of COVID-19, including shelter-in-place orders, social distancing measures, travel bans and restrictions, and business and government shutdowns, have already resulted in significant negative economic impacts on a global basis.

Due to these impacts and measures, we have experienced and may continue to experience significant and unpredictable reductions in the demand for our products as healthcare customers divert medical resources and priorities towards the

treatment of COVID-19. In addition, our customers may delay, cancel, or redirect planned purchases in order to focus resources on COVID-19 or in response to economic disruption related to COVID-19. For example, in the last two weeks of March 2020, we experienced a significant decline in volumes in the U.S. and Europe, as healthcare systems diverted resources to meet the increasing demands of managing COVID-19. In addition, public health bodies have recommended delaying elective surgeries during the COVID-19 pandemic, which may continue to negatively impact the usage of our products, including the number of Neuromodulation procedures.

As of 31 March 2020, the Group had cash and cash equivalents of $125.8 million. In connection with our assessment of going concern considerations, the Group determined that the projected reduction in sales primarily in fiscal year 2020 would result in our inability to comply with certain debt covenants as of the end of 30 June 2020 and 31 December 2020, which represented a condition that raises significant doubt about our ability to continue as a going concern within one year after the date that these consolidated financial statements are available to be issued. As a result of this risk, in April 2020, the Group entered into amendments that modified the maximum consolidated net debt to EBITDA and the interest coverage ratio covenants in its debt agreements for the remainder of 2020. The Group also implemented cost-cutting measures, including reduced hiring, marketing, travel, capital expenditures and certain research and development activities. Management has concluded that the amendments to the covenants in its debt agreements, when combined with current and anticipated future operating cash flows, alleviates the significant doubt about the Group's ability to continue as a going concern for at least twelve months from the issuance date of these consolidated financial statements.

Regardless, COVID-19 continues to create uncertainty in relation to the impact on future revenues, the ability of the Group to access supplies and personnel to continue the production of inventory to meet customer needs, and ultimately, the amount of time necessary for elective surgeries to return to previous levels. Absent any further cost-cutting measures, there is a risk of breaching the Group's debt covenants in future periods and a risk that the Group may not have sufficient funds to meet future obligations as they fall if: current market conditions deteriorate further as a result of COVID-19; management's judgments and assumptions regarding future industry, market or operating conditions change, including our assumptions regarding the timing of when elective surgeries may be rescheduled; or if there are government interventions impacting our areas of operation. If this were to occur, the Group may pursue further or more substantial cost-cutting measures all of which are in the control of the Group such as; reduction of discretionary spend in the areas of R&D and clinical trials and reduction in employee related compensation. Also, while not entirely in our control, we may:

- Execute additional amendments or waivers to existing debt covenants,
- Obtain additional bank financing or alternative sources of liquidity,
- Renegotiate the terms of our existing debt facilities, and
- Explore additional funding options such as accounts receivable factoring.

Having considered our revised forecasts, which include the impact of COVID-19 on our business and a projected decline of elective surgeries in Q2, with stabilisation in Q3 and return to growth in Q4, as well as a severe but plausible downside to this base case which forecasts a delay in the return to growth, and the counter measures that are in the Group's control, the directors are satisfied that the risk of a breach of banking covenants through at least twelve months from the issuance date of these consolidated financial statements could be mitigated. Therefore, it is appropriate to adopt the going concern basis in preparing the consolidated financial statements.

The consolidated financial statements have been prepared on a historical cost basis, except for investments in equity instruments in privately-held companies, derivative financial instruments, contingent consideration liabilities, pension obligations and share awards that have been measured at fair value. The consolidated financial statements are presented in USDs and all values are rounded to the nearest thousands, except where otherwise indicated.

Fiscal Year-End. LivaNova's fiscal year ends 31 December.

Consolidation. The accompanying consolidated financial statements include LivaNova, our wholly owned subsidiaries *and associates* and the LivaNova PLC Employee Benefit Trust. All significant intercompany accounts and transactions have been eliminated.

Equity Method. Under the equity method of accounting, the investments in associates and joint ventures are initially recognised at cost and adjusted thereafter to recognise the Company's share of the post-acquisition profits or losses of the investee in profit or loss, and the Company's share of movements in other comprehensive income (loss) of the investee in other comprehensive income (loss). Dividends received or receivable from associates are recognised as a reduction in the carrying amount of the investment.

Unrealised gains on transactions between the Company and its associates and joint ventures are eliminated to the extent of the Company's interest in these entities. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred.

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 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 selling, general and administrative on the consolidated statement of (loss) income. We recognise adjustments to the provisional amounts identified during the measurement period with a corresponding adjustment to goodwill in the reporting year in which the adjustment amounts are determined. The effect on earnings of changes in depreciation, amortisation or other income effects, if any, as a result of the change to the provisional amounts are recorded in the same year's consolidated 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 sheet consist of finite-lived and indefinite-lived assets expected to generate future economic benefits and are recorded at their respective fair values as of their acquisition date. Finite-lived intangible assets consist primarily of developed technology and technical capabilities, including patents, related know-how and licensed patent rights, trade names, customer relationships and favourable leases acquired in acquisitions. Customer relationships consist of relationships with hospitals and cardiac surgeons in the countries where we operate. Indefinite-lived intangible assets other than goodwill are composed of In Process Research and Development ("IPR&D") assets acquired in acquisitions. We estimate the useful lives of our intangible assets, which requires management judgement. We amortize our finite-lived intangible assets over their useful lives using the straight-line method.

We evaluate our intangible assets each reporting year 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.

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 of 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 ("AOCI") on the consolidated balance sheet. Gains and losses arising from transactions denominated in a currency different from an entity's functional currency are included in foreign exchange and other (losses) gains on our consolidated statement of (loss) income. 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.

Foreign currency differences arising from translation are recognised in the consolidated statement of (loss) income.

The Euro and GBP exchange rate to the USD used in preparing the Company financial statements was as follows:

	Weighted Average Rate Euro	Closing Rate Euro	Weighted Average Rate GBP	Closing Rate GBP
Year ended 31 December 2019	0.893318	0.891190	0.783710	0.756720
Year ended 31 December 2018	0.847229	0.874550	0.749697	0.781250

Financial Instruments. A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. Financial assets and financial liabilities are offset with the net amount reported in the consolidated balance sheet only if there is a current enforceable legal right to offset the recognised amounts and intent to settle on a net basis, or to realise the assets and settle the liabilities simultaneously.

(a) *Financial Assets*

Initial Recognition and Measurement. Financial assets are classified, at initial recognition, as financial assets at fair value through profit or loss, loans and receivables, investments, financial assets, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. The Company determines the classification of its financial assets at initial recognition. All financial assets are recognised initially at fair value plus, in the case of assets not at fair value through profit or loss, transaction costs that are attributable to the acquisition of the financial asset. Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the marketplace (regular way trades) are recognised on the trade date, i.e., the date on which the Company commits to purchase or sell the asset.

The subsequent measurement and impairment of financial assets depends on their classification as described below:

Financial Assets at Fair Value Through Profit or Loss. Financial assets at fair value through profit or loss include financial assets held for trading and financial assets designated upon initial recognition at fair value through profit or loss. Financial assets are classified as held-for trading if they are acquired for the purpose of selling or re-purchasing in the near term. This category includes derivative financial instruments entered into by the Company that are not designated as hedging instruments in hedge relationships as defined by IFRS 9. 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 recognised in income statement, thereby offsetting the current net income (loss) effect of the related change in value of foreign currency denominated assets and liabilities.

Changes in the fair value of our investments in equity instruments held at fair value are recognised through profit or loss.

Loans and Receivables. Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. After initial measurement, such financial assets are subsequently measured at amortised cost using the effective interest rate method, less impairment. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate ("EIR"). The EIR amortisation is included in finance income in the statement of profit or loss. The receivable balance consists of trade receivables from direct customers and distributors and loans issued. We maintain an expected credit loss provision for expected 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 uncollectable accounts against the provision when all reasonable collection efforts have been exhausted. Loans, together with the associated provision are written off when there is no realistic prospect of future recovery and all collateral has been realised or has been transferred to the Company. The losses arising from impairment are recognised in the consolidated statement of (loss) income in cost of sales or other operating expenses for receivables.

Collection periods for trade receivables vary significantly due to the nature of a customer (e.g. government or private) and its geographic location. LivaNova may utilize non-recourse and with-recourse factoring arrangements as a part of its funding policy; however, as at 31 December 2019 and 31 December 2018, there are no factoring arrangements outstanding.

Refer to "Note 15. Trade Receivables and Other Receivables" for further information.

Financial Asset Derecognition. A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is derecognised when:

- The rights to receive cash flows from the asset have expired, or
- The Company has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through arrangement, and either (a) the Company has transferred substantially all the risks and rewards of the asset, or (b) the Company has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

(b) *Financial Liabilities*

Initial Recognition and Measurement. Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings (bank debt), payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. All financial liabilities are recognised initially at fair value and, in the case of loans, borrowings and payables, net of directly attributable transaction costs. The Company's financial liabilities include trade and other payables, loans and bank debt including bank overdrafts, and derivative financial instruments.

The measurement of financial liabilities depends on their classification, as follows:

Financial Liabilities at Fair Value Through Profit or Loss. Financial liabilities at fair value through profit or loss include financial liabilities held-for-trading and financial liabilities designated upon initial recognition as at fair value through profit or loss. Financial liabilities are classified as held-for-trading if they are acquired for the purpose of selling in the near term. This category includes derivative financial instruments entered into by the Company that are not designated as hedging instruments in hedge relationships as defined by IFRS 9, which the Company has elected to apply. Gains or losses on liabilities held-for-trading are recognised in the consolidated statement of (loss) income. Financial liabilities designated upon initial recognition at fair value through profit or loss are designated at the initial date of recognition, and only if the criteria in IFRS 9 are satisfied. The Company has not designated any financial liabilities as at fair value through profit or loss. Changes in the fair value of our contingent consideration liability are recognised through profit or loss.

Loans and Borrowings (bank debt). After initial recognition, interest bearing loans and borrowings are subsequently measured at amortised cost using the effective interest rate method. Gains and losses are recognised in the consolidated statement of (loss) income when the liabilities are de-recognised, as well as through the EIR method amortisation process. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortisation is included in finance costs in the consolidated statement of (loss) income.

Financial Guarantee Contracts. Financial guarantee contracts issued by the Company are those contracts that require a payment to be made to reimburse the holder for a loss it incurs,

because the specified debtor fails to make a payment when due, in accordance with the terms of a debt instrument. Financial guarantee contracts are recognised initially as a liability at fair value, and then adjusted for transaction costs that are directly attributable to the issuance of the guarantee. Subsequently, the liability is measured through profit or loss at the higher of the best estimate of the expenditure required to settle the present obligation at the reporting date and the amount recognised less cumulative amortisation.

Financial Liability Derecognition. A financial liability is de-recognised when the obligation under the liability is discharged, cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a de-recognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognised in the consolidated statement of (loss) income.

Derivative Financial Instruments and Hedge Accounting. We use currency exchange rate derivative contracts and interest rate derivative instruments to manage the impact of currency exchange and interest rate changes on the consolidated statement of (loss) income and the consolidated statement of cash flows. Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently re-measured at fair value. The method of recognising the resulting gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. 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 the consolidated statement of (loss) income. Cash flows from derivative contracts are reported as operating activities in the consolidated statement of cash flows.

When a hedging instrument expires, is sold or is terminated, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the consolidated statement of (loss) income. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately reclassified to profit or loss.

In order to minimise income statement 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 and of some revenue. At inception of the forward contract, the derivative is designated as either a freestanding derivative or a cash flow hedge. 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 to the consolidated statement of (loss) income to offset exchange differences originated by the hedged item or to adjust the value of net income (loss) from continuing operations. We do not enter into currency exchange rate derivative contracts for speculative purposes.

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 sheet 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 (loss). The non-effective portion is reported in interest expense in the consolidated statement of (loss) income.

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. Cash equivalents are carried on the consolidated balance sheet at cost, which approximated their fair value.

Non-monetary Assets. Property, Plant and Equipment. PP&E is carried at cost, less accumulated depreciation and any accumulated impairment losses. Maintenance and 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. Where an item of PP&E comprises several parts with different useful lives, each part is recognised as a separate item and depreciated over its useful life. Useful life and residual value of PP&E are reviewed at each year-end. As necessary, the occurrence of changes to the useful life or residual value is recognised prospectively as a change in accounting estimates.

Leasehold improvements are depreciated over the shorter of the useful life of an asset or the lease term. 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.

The estimated useful lives for all classes of depreciable PP&E, except for land and capital investment in process which are not depreciated, as of 31 December 2019 are as follow:

	Lives in Years
Building and building improvements	3 to 39
Equipment, other, furniture, fixtures	2 to 13

Where there are any internal or external indications that the value of an item of PP&E may be impaired, the recoverable amount of the group of CGUs to which it belongs is calculated. If the recoverable amount is less than the carrying amount of the group of CGUs, a provision for impairment is recorded. PP&E is reviewed for impairment annually on 31st of December.

Impairment of Long-lived Assets. The Company assesses, at each reporting date, whether there is an indication that an asset may be impaired. If any indication exists, or when annual impairment testing for an asset is required, the Company estimates the asset's recoverable amount. An asset's recoverable amount is the higher of an asset's CGU's fair value less costs of disposal and its value in use. It is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. Where the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount.

The methodology applied to our CGUs value in use calculations, reflecting past experience and external sources of information, includes Board approved five-year budgets based on pre-tax cash flows which are extended to trend the expected revenue growth rate at the end of the budgeted period down to the estimated long-term growth rate in a linear manner. The methodology applied to our value in use calculations is based on projected periods and includes a discounted cash flow model test, utilizing discount rates and a long-term growth rate. Goodwill impairment evaluations are highly subjective. They involve expectations of future cash flows that reflect our judgements and assumptions regarding future industry conditions and operations. The estimates, 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. Quantitative factors used to determine the fair value of the CGU reflect our best estimates, and we believe they are reasonable. Future declines in the CGU's operating performance or our anticipated business outlook may reduce the estimated fair value of our CGU and result in additional impairment. 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; and
- Increases in the market-participant risk-adjusted weighted average cost of capital ("WACC") Refer to "Note 11. Goodwill and Intangible Assets" for sensitivity analyses.

Generally, for intangible assets with a definite useful life, the Company uses cash flow projections for the whole useful life of these assets with a terminal value based on cash flow projections usually in line with or lower than inflation rates for later years.

Discount rates used are based on the Company's estimated WACC adjusted for specific country and currency risks associated with cash flow projections as an approximation of the weighted average cost of capital of a comparable market participant. Due to the above factors, actual cash flows and values could vary significantly from forecasted future cash flows and related values derived using discounting techniques.

Goodwill is tested for impairment annually as at 31 December and when circumstances indicate that the carrying value may be impaired. Impairment is determined for goodwill by assessing the recoverable amount of each CGU (or group of CGUs) to which the goodwill relates. Where the recoverable amount of the cash generating unit is less than their carrying amount, an impairment loss is recognised. Impairment losses relating to goodwill cannot be reversed in future years.

We conduct impairment testing of our indefinite-lived intangible assets on 31 December each year. We test indefinite-lived intangible assets for impairment between annual tests if an event occurs or circumstances change that would indicate the carrying amount may be impaired. An impairment loss is recognised when the asset's carrying value exceeds its fair value.

Research and Development. Research costs are recognised as an expense for the year in which they are 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.

Inventories. We state our inventories at the lower of cost, using the first-in first-out, and net realizable value. Our calculation of cost includes the acquisition cost of raw materials and components, direct labour 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.

Revenue Recognition. Refer to "Note 3. Revenue Recognition."

Defined Benefit Pension Plans and Other Post-Employment Benefits. The Company sponsors 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 U.S. The cost of providing benefits under the defined benefit plans is determined separately for each plan using the projected unit credit method.

Re-measurements, comprising of actuarial gains and losses, the effect of the asset ceiling (excluding amounts included in net interest on the net defined benefit liability) and the return on plan assets (excluding amounts included in net interest on the net defined benefit liability), are recognised immediately in the consolidated balance sheet with a corresponding debit or credit to retained earnings through OCI in the year in which they occur. Re-measurements are not reclassified to profit or loss in subsequent years.

Past service costs are recognised in profit or loss on the earlier of:

- The date of the plan amendment or curtailment, and
- The date on which the Company recognises related restructuring costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The Company recognises the following changes in the net defined benefit obligation under cost of sales and selling, general and administrative expenses in the consolidated statement of (loss) income (by function):

- Service costs comprising current service costs, past-service costs, gains and losses on curtailment and non-routine settlements
- Net interest expense or income

Provision for severance indemnity is mandatory for Italian companies and is considered:

- a defined benefit plan with respect to amounts vested up to 31 December 2006 and amounts vesting from 1 January 2007 for employees who have chosen to maintain the Trattamento di Fine Rapporto ("TFR") at the company, for companies with 50 or fewer employees;
- a defined contribution plan with respect to amounts vesting as from 1 January 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.

As a defined benefit plan, the TFR is measured using the unit credit projection method based on actuarial assumptions (demographic assumptions: mortality, turnover, disability of the population included in the above plan; financial assumptions: discount rate, benefit growth rate, capitalization rate). The increase in the present value of the TFR is included in personnel expense, with the exception of the revaluation of the net liability, which is recorded among items of other comprehensive income. The cost of TFR accrued through 31 December 2006 no longer includes the component related to future salary increases. Payments of TFR, as a defined contribution plan, are also included in personnel expense, and until they are settled financially, they have a balancing entry in the statement of financial position in the form of current payables.

Share-Based Compensation. We grant share-based incentive awards to directors, officers, key employees and consultants during each fiscal year. 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. The cost of equity-settled transactions is recognised in employee benefits expense, together with a corresponding increase in Retained earnings over the period in which the service and the performance conditions are fulfilled (the vesting period). The cumulative expense recognised for equity-settled transactions at each reporting date until the vesting date reflects the extent to which the vesting period has expired and the Company's best estimate of the number of equity instruments that will ultimately vest. We issue new shares upon stock option exercises, otherwise issuance of stock for vesting of restricted stock, restricted stock units or exercises of 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. The social security contributions on employee share-based payment awards are accrued over the service period.

The following share-based incentive awards are offered by the Company:

- *Share Appreciation Rights.* A SAR confers upon an employee the contractual right to receive an amount of cash, share, or a combination of both that equals the appreciation in the Company's common share 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 share. The SARs may be settled in LivaNova shares and/or cash, as determined by LivaNova and as set forth in the individual award agreements. 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 on historical volatility.
- *Restricted Share and Restricted Share Units.* We may grant RS and RSUs at no purchase cost to the grantee. The grantees of unvested RSUs have no voting rights or rights to dividends. Sale or transfer of the stock and stock units is restricted until they are vested. The fair market value of service-based RS and RSUs is 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. We have the right to elect to pay the cash value of vested restricted share units in lieu of the

issuance of new shares. Under our share-based compensation plans we re-purchase a portion of these shares from our employees to permit our employees to meet their minimum statutory tax withholding requirements on vesting of their restricted share.

- *Market and Performance-Based Restricted Share and Performance-Based Restricted Share Units.* We may grant restricted share and restricted share units subject to market or performance conditions that vest based on the satisfaction of the conditions of the award. The fair market values of market condition-based awards are determined using the Monte Carlo simulation method. The Monte Carlo simulation method is subject to variability as several factors utilized must be estimated, including the derived service period, which is estimated based on our judgement of likely future performance and our share price volatility. The fair value of performance-based awards is determined using the market closing price on the grant date. Derived service periods and the periods charged with compensation expense for performance-based awards are estimated based on our judgement of likely future performance and may be adjusted in future periods depending on actual performance.

Income Taxes. The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case, the tax is also recognised in other comprehensive income or directly in equity, respectively.

The income tax expense or credit for the year is the tax payable on the current year's taxable income based on the applicable income tax rate for each jurisdiction, adjusted by changes in deferred tax assets and liabilities attributable to temporary differences and to unused tax losses.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting year in the countries where the company's subsidiaries and associates operate and generate taxable income. The Company is subject to taxation on earnings in several countries under various tax regulations. Calculation of taxes on a global scale requires the use of estimates and assumptions developed based on the information available at the balance sheet date. Management establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred taxes are recognised by the liability method for temporary differences between the carrying amount of assets and liabilities in the consolidated balance sheet and their tax base. They are measured at the tax rates that are expected to apply to the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the balance sheet date. Adjustments to deferred taxes resulting from changes in tax rates are recognised in profit or loss. A deferred tax asset is recognised for all deductible temporary differences to the extent that it is probable that taxable profit will be available against which the deductible temporary difference can be utilized. At each year-end, the Company reviews the recoverable value of deferred tax assets of tax entities holding significant loss carryforwards. This value is based, by tax entity, on the strategy for recoverability of the tax loss carryforwards. Deferred taxes are charged or credited directly to equity when the tax relates to items that are recognised directly in equity, such as gains and losses on cash flow hedges and actuarial gains and losses on defined benefit plan obligations. Deferred tax assets and liabilities are set off when they are levied on the same taxable entity (legal entity or tax group) by the same taxation authority and the entity has a legally enforceable right of set off. Deferred taxes are recognised for all temporary differences associated with investments in subsidiaries and associates, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax balances are not discounted.

Leases. On 1 January 2019, we adopted IFRS 16, *Leases,* which replaced IAS 17, Leases, and introduces new or amended requirements with respect to lease accounting. It introduces significant changes to lessee accounting by removing the distinction between operating and finance lease and requiring the recognition of a right-of-use asset and lease liability at commencement for all leases with certain exceptions discussed below. Lessees subsequently reduce the lease liability when paid and recognise depreciation on the leased asset. We adopted the standard using the modified retrospective approach with an effective date of 1 January 2019. We recognised $61.4 million of ROU assets and $61.8 million of lease liabilities upon initial adoption on 1 January 2019. We primarily have leases for (i) real estate, including office space and manufacturing, warehouse and research and development facilities and (ii) vehicles. Prior year financial statements were not restated under the new standard. As a practical expedient, no reassessment was performed of contracts that were previously identified as leases and contracts that were not previously identified as containing a lease applying IAS 17 and IFRIC 4 'Determining whether an Arrangement contains a Lease.' At the adoption date, additional lease liabilities were recognised for leases previously classified as operating leases applying IAS 17. These lease liabilities were measured at the present value of the remaining lease payments and discounted using entity-specific incremental borrowing rate as discussed further below. In general, a corresponding right-of-use asset was recognised for an amount equal to each lease liability, adjusted by the amount of any prepaid or accrued lease payment relating to the specific lease contract, as recognised on the balance sheet at 31 December 2018. In addition, we elected the practical expedient to account for lease and non-lease components together as a single combined lease component, which is applicable to all asset classes. We did not, however, elect the practical expedient related to using hindsight in determining the lease term as this was not relevant following our election of the modified retrospective approach.

In addition, we elect certain practical expedients on an ongoing basis, including the practical expedient for short-term

leases and leases of low-value assets pursuant to which a lessee is permitted to make an accounting policy election by class of underlying asset not to recognise a lease liability and lease asset. A short-term lease is defined as a lease with a term of 12 months or less and does not include an option to purchase the underlying asset that the lessee is reasonably certain to exercise. In exception to vehicles as it relates to the low-value lease asset policy, we have applied these accounting policies to all asset classes in our portfolio and will recognise the lease payments for such short-term leases and leases of low-value assets within profit or loss on a straight-line basis over the lease term.

The standard has no impact on the actual cash flows. However, the standard requires the capitalisation, and subsequent depreciation, of costs that were previously expenses as paid, which impacts disclosures of cash flows within the cash flow statement. From 1 January 2019, the payments of leases representing the principal portion is classified as financing activities and the interest portion is classified in operating activities along with payments for short-term leases and leases of low-value assets.

Furthermore, from a lessor perspective, certain of our agreements that allow the customer to use, rather than purchase, our medical devices meet the criteria of being a lease in accordance with the new standard. While the amount of revenue and expenses recognised over the contract term will not be impacted, the timing of revenue and expense recognition will be impacted depending upon lease classification. We enacted appropriate changes to our business processes, systems and internal controls to support identification, recognition and disclosure of leases under the new standard.

We determine if an arrangement is or contains a lease at inception or when the terms and conditions of a contract are significantly changed. Right-of-use assets and lease liabilities are recognised based on the present value of the future minimum lease payments over the lease term at the latter of our lease standard effective date for adoption or the lease commencement date. The lease term is the non-cancellable period of a lease, together with contractual options to extend or to terminate the lease early, where it is reasonably certain that an extension option will be exercised or a termination option will not be exercised. Variable lease payments that do not depend on an index or rate, such as variable common area rent maintenance charges and utility fees not known upon lease commencement, are not included in determination of the minimum lease payments and will be expensed in the period in which the obligation for those payments is incurred. Variable lease payments that depend on an index or rate are initially measured using the index or rate as of the commencement date. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement in determining the present value of future payments. The incremental borrowing rate is determined using a risk-free rate adjusted for factors such as credit rating and borrowing currency, and represents an estimate of the interest rate we would incur at lease commencement to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset over the term of a lease. We used the incremental borrowing rate available nearest to our adoption date for leases that commenced prior to that date. The right-of-use lease asset also includes any lease payments made in advance and excludes lease incentives. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Right-of-use assets are depreciated over the shorter of the asset's useful life or the lease term on a straight-line basis. Lease payments are allocated between the liability and finance costs. Finance costs are recorded as an expense in the Consolidated Statement of Income over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability. Certain of our leases provide for tenant improvement allowances that have been recorded as right-of-use assets and amortized, using the straight-line method, over the life of the lease.

For additional information refer to "Note 19. Leases."

Prior to the adoption of IFRS 16, *Leases*, on 1 January 2019, we accounted for leases that transfer substantially all risks and rewards incident 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 were recognised on a straight-line basis over the term of the lease.

Equity. Ordinary Shares are classified as equity. Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Where any group company purchases the Company's equity instruments, for example as the result of a share buy-back or a share-based payment plan, the consideration paid, including any directly attributable incremental costs (net of income taxes) is deducted from equity attributable to the owners of LivaNova as treasury share until the shares are cancelled or reissued. Where such Ordinary Shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs and the related income tax effects, is included in equity attributable to the owners of LivaNova.

Provisions and Warranties. Provisions for legal claims, service warranties and make good obligations are recognised when the Company has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated. Provisions are not recognised for future operating losses. Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole. A provision is recognised even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting year. The discount rate used to determine the present value is a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The increase in the provision due to the passage of time is recognised as interest expense.

The Company offers a warranty on various products. The Company estimates the costs that may be incurred under warranties and records 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. The warranty obligation is included in accrued liabilities on the consolidated balance sheet. Warranty expense is recorded in cost of sales in the consolidated statement of (loss) income.

Contingent Consideration. Contingent consideration is recognised at fair value at the date of acquisition 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. The discount rate used is a benchmark yield curve for U.S. healthcare companies, determined at the time of measurement. Contingent consideration is remeasured each reporting year with the change in fair value, including accretion for the passage of time, recorded in the consolidated statement of (loss) income. The change in fair value of contingent consideration based on the achievement of regulatory milestones is recorded as research and development expense while the change in fair value of sales-based earnout contingent consideration is recorded as cost of sales.

Product Liability Accruals. Accruals for product liability claims are recorded when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on existing information. Accruals for product liability claims are adjusted periodically as additional information becomes available. The Company accrues an estimate of the legal defense costs needed to defend each matter when those costs are probable and can be reasonably estimated.

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 statement of (loss) 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 judgement regarding future events.

Earnings Per Share. Basic (loss) earnings per share is calculated by dividing the (loss) income for the year attributable to equity holders of the parent by the weighted average number of shares outstanding during the year. Diluted EPS is calculated by dividing the income (loss) attributable to equity holders of the parent by the weighted average number of shares outstanding during the year plus the weighted average number of shares that would be issued on conversion of all the dilutive potential shares into shares. Refer to "Note 27. Earnings Per Share" for additional information.

Critical Estimates and Judgements. The preparation of our consolidated financial statements in conformity with IFRS requires management to make estimates and judgements that affect the amounts reported in such financial statements and accompanying notes. These estimates and judgements are based on management's best knowledge of current events and actions we may undertake in the future. Actual results could differ materially from those estimates. Application of the following accounting policies requires certain judgements and estimates that have the potential for the most significant impact on our consolidated financial statements:

Critical Estimates

- *3T Litigation Provision.* Provisions for legal claims are recognised when the Company has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated. Estimates are used in assessing the likelihood of a loss being incurred and when determining a reasonable estimate of the loss for each claim. Final settlement amounts may be materially different from the provision recorded.
- *Impairment of non-financial assets.* An impairment exists when the carrying value of an asset or cash generating unit exceeds its recoverable amount, which is generally based on available data from binding sales transactions, conducted at arm's length for similar assets, observable market prices less incremental costs for disposing of the asset or based on a discounted cash flow model. The discounted cash flow model is most sensitive to the discount rate used as well as the expected future cash inflows and the growth rate used for extrapolation purposes. Refer to disclosure in "Note 11. Goodwill and Intangible Assets" where reasonably possible changes in key assumptions could affect the carrying value.
- *Retirement and Other Post-Employment Benefit Plans.* We sponsor pension and other post-employment benefit plans in various forms that cover a significant portion of our current and former associates. For post-employment plans with defined benefit obligations, we are required to make significant assumptions and estimates about future events in calculating the expense and the present value of the liability related to these plans. These include assumptions about the interest rates we apply to estimate future defined benefit obligations and net periodic pension expense as well as rates of future pension increases. In addition, our actuarial consultants provide our management with historical statistical information, such as withdrawal and mortality rates in connection with these estimates. Assumptions and estimates used by the Company may differ materially from the actual results we

experience due to changing market and economic conditions, higher or lower withdrawal rates, and longer or shorter life spans of participants among other factors. For more information on obligations under retirement and other post-employment benefit plans, underlying actuarial assumptions and sensitivity analysis, see "Note 24. Employee Retirement Plans."

- *Goodwill and Intangible Assets — In-process research and development.* Goodwill and in-process R&D were recognized as part of the acquisitions of Caisson, ImThera and TandemLife, based 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. The key estimates in the valuation include the discount rate as well as the expected revenue growth rate and the terminal growth rate. For a discussion of impairments recognised and sensitivity analyses performed, refer to "Note 11. Goodwill and Intangible Assets."

Critical Judgements

- *Commitments and Contingencies.* A number of LivaNova subsidiaries are involved in various government investigations and legal proceedings (product liability, commercial, employment, environmental claims, etc.) arising out of the normal conduct of their businesses. The outcome of these matters is not certain and judgement is required in determining whether these matters require the recognition of a liability. The most significant matter considered in the year relates to the product remediation plan for our 3T device. For more information, see "Note 26. Commitments and Contingencies."
- *Taxes.* We prepare and file our tax returns based on an interpretation of tax laws and regulations and record estimates based on these judgements and interpretations. Critical accounting judgments and estimates include such items as the recording of valuation allowances for deferred tax assets and the determination of uncertain tax positions. Our tax returns are subject to examination by the competent taxing authorities, which may result in an assessment being made requiring payments of additional tax, interest or penalties. See "Note 25. Income Taxes" and "Note 26. Commitments and Contingencies."
- *Exceptional Items.* Exceptional items are expense or income items which have been determined by management as being material by their size or incidence and are presented separately within the results of the group. The determination of which items are disclosed as exceptional items will affect the presentation of profit measures and requires a degree of judgement. Details relating to exceptional items reported during the year are set out in "Note 32. Exceptional Items."

Note 3. Revenue Recognition

We generate our revenue through contracts with customers that primarily consist of hospitals, healthcare institutions, distributors and other organizations. Revenue is measured based on consideration specified in a contract with a customer, and excludes amounts collected on behalf of third parties. We measure the consideration based upon the estimated amount to be received. The amount of consideration we ultimately receive varies depending upon the return terms, sales rebates, discounts, and other incentives that we may offer, which are accounted for as variable consideration when estimating the amount of revenue to recognise. The estimate of variable consideration requires judgement.

We have historically experienced a low rate of product returns and the total dollar value of product returns has not been significant to our consolidated financial statements.

We recognise revenue when a performance obligation is satisfied by transferring the control of a product or providing service to a customer. Some of our contracts include the purchase of multiple products and/or services. In such cases, we allocate the transaction price based upon the relative estimated stand-alone price of each product and/or service sold. We record state and local sales taxes net: that is, we exclude sales tax from revenue. Typically, our contracts do not have a significant financing component.

We incur incremental commission fees paid to the sales force associated with the sale of products. We apply the practical expedient within IFRS 15 and have elected to recognise the incremental costs of obtaining a contract as an expense when incurred if the amortisation period of the asset the entity would otherwise recognise is one year or less. As a result, no commissions have been capitalized as contract costs since adoption of IFRS 15.

The following is a description of the principal activities (separated by reportable segments) from which we generate our revenue. For more detailed information about our reportable segments including disaggregated revenue results by operating segment, major product line and primary geographic market, see "Note 28. Segment and Geographic Information."

Cardiovascular Products and Services

Our Cardiovascular segment has three primary product lines: cardiopulmonary products, heart valves and advanced circulatory support.

Cardiopulmonary products include oxygenators, heart-lung machines, autotransfusion systems, perfusion tubing systems, cannulae and other related accessories. Heart valves include mechanical heart valves, tissue heart valves, related repair

products and minimally invasive surgical instruments. Advanced circulatory support includes temporary life support product kits that can include a combination of pumps, oxygenators, and cannulae.

Cardiopulmonary products may include performance obligations associated with assembly and installation of equipment. Accordingly, we allocate a portion of the sales prices to installation obligations and recognise that revenue when the service is provided. We recognise revenue for equipment and accessory product sales when control of the equipment or product passes to the customer.

Heart valve revenue is recognised when control passes to the customer, usually at the point of surgery.

Advanced circulatory support revenue is recognised when control passes to the customer, usually at the point of shipment.

Technical services include installation, repair and maintenance of cardiopulmonary equipment under service contracts or upon customer request. Technical service agreements generally provide for upfront payments in advance of rendering services or periodic billing over the contract term. Amounts billed in advance are deferred and recognised as revenue when the performance obligation is satisfied. Technical services are not a significant component of Cardiovascular revenue and have been presented with the related equipment and accessories revenue.

Neuromodulation Products

Neuromodulation segment products are comprised of Neuromodulation therapy systems for the treatment of drug-resistant epilepsy, DTD and obstructive sleep apnea. Our Neuromodulation product line includes the VNS Therapy System, which consists of an implantable pulse generator, a lead that connects the generator to the vagus nerve, and other accessories. Our Neuromodulation product line also includes 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. We recognise revenue for Neuromodulation product sales when control passes to the customer.

Contract Balances

Due to the nature of our products and services, revenue producing activities may result in contract assets and contract liabilities which are insignificant to our financial position and results of operations. These activities relate primarily to Cardiovascular technical services contracts for short-term and multi-year service agreements. Contract assets are primarily comprised of unbilled revenues, which occur when a performance obligation has been completed, but not billed to the customer. Contract liabilities are made up of deferred revenue, which occurs when a customer pays for a service, before a performance obligation has been completed. Contract assets are included within prepaid expenses and other current assets on the consolidated balance sheet and were insignificant at 31 December 2019 and 31 December 2018. As of 31 December 2019 and 31 December 2018, contract liabilities of $8.6 million and $4.8 million, respectively, were included within accrued liabilities and other and other long-term liabilities on the consolidated balance sheet.

Note 4. Financial Risk Management

Management of Financial Risk

Increasing market fluctuations may result in significant earnings and cash flow volatility risk for LivaNova. The Company's operating business as well as its investment and financing activities are affected particularly by changes in foreign exchange rates, interest rates and concentration of procurement suppliers and customers. In order to optimize the allocation of the financial resources across the LivaNova franchises and entities, as well as to achieve its aims, LivaNova identifies, analyses and manages the associated market risks. The Company seeks to manage and control these risks primarily through its regular operating and financing activities, and uses derivative financial instruments when deemed appropriate.

The Company's CFO oversees the management of these risks. The CFO is supported by a senior financial management team that advises on financial risks and the appropriate financial risk governance framework for the Company. The senior financial management team provides assurance to the Company's senior management that the Company's financial risk activities are governed by appropriate policies and procedures and that financial risks are identified, measured and managed in accordance with policies and risk appetite. All derivative activities for risk management purposes are carried out by teams that have the appropriate skills, experience and supervision. It is the Company's policy that no trading in derivatives for speculative purposes may be undertaken. Intercompany financing or investments of operating units are preferably carried out in their functional currency or on a hedged basis. The Board of Directors reviews and agrees to policies for managing each of these risks.

Liquidity Risk

Liquidity risk results from the Company's inability to meet its financial liabilities. LivaNova follows a financing policy that is aimed towards a balanced financing portfolio, a diversified maturity profile and a comfortable liquidity cushion. LivaNova mitigates liquidity risk by the implementation of an effective

working capital and centralized cash management and arranged credit facilities with highly rated financial institutions. In addition, LivaNova constantly monitors funding options available in the capital markets, as well as trends in the availability and costs of such funding, with a view to maintaining financial flexibility and limiting repayment risks.

The following tables reflect the undiscounted cash outflows related to settlement and repayments, of the Company's financial liabilities at a balance sheet date. The disclosed expected undiscounted net cash outflows from derivative financial liabilities are determined based on each particular settlement date of an instrument and based on the earliest date on which LivaNova could be required to pay. Cash outflows for financial liabilities without fixed amount or timing are based on the conditions existing at the respective balance sheet date.

Contractual undiscounted cash outflows were as follows (in thousands):

	31 December 2019				
	Due Within 1 Year	1 – 2 Years	2 – 5 Years	Over 5 Years	Total
Non-derivative financial instruments					
Trade payables	$ 85,038	$ –	$ –	$ –	$ 85,038
Financial liabilities	77,414	111,370	125,540	24,261	338,585
Total	**$ 162,452**	**$ 111,370**	**$ 125,540**	**$ 24,261**	**$ 423,623**
Financial derivative liabilities					
- on exchange risk	$ 2,860	$ –	$ –	$ –	$ 2,860
- on rate risk	313	61	–	–	374
Total	**$ 3,173**	**$ 61**	**$ –**	**$ –**	**$ 3,234**

	31 December 2018				
	Due Within 1 Year	1-2 Years	2-5 Years	Over 5 Years	Total
Non-derivative financial instruments					
Trade payables	$ 75,182	$ –	$ –	$ –	$ 75,182
Financial liabilities	28,794	36,540	62,599	40,399	168,332
Total	**$ 103,976**	**$ 36,540**	**$ 62,599**	**$ 40,399**	**$ 243,514**
Financial derivative liabilities					
- on exchange risk	$ 4,527	$ –	$ –	$ –	$ 4,527
- on rate risk	536	281	48	–	865
Total	**$ 5,063**	**$ 281**	**$ 48**	**$ –**	**$ 5,392**

Foreign Currency Exchange Rate Risk

Foreign exchange risk is the risk that reported financial performance of the fair value of future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. LivaNova operates in many countries and currencies and therefore currency fluctuations may impact LivaNova's financial results. In the ordinary course of business LivaNova is exposed to foreign currency exchange rate fluctuations, particularly between the USD, Euro, Canadian Dollar, GBP and Japanese Yen. LivaNova is exposed to currency risk in the following areas:

- Transaction exposures, related to anticipated sales and purchases and on-balance-sheet receivables/ payables resulting from such transactions
- Translation exposure of foreign-currency intercompany and external debt
- Translation exposure of net income in foreign entities
- Translation exposure of foreign-currency denominated equity invested in consolidated companies

It is LivaNova's policy to reduce the potential year on year volatility caused by foreign-currency movements on its net earnings by hedging the anticipated net exposure of foreign currencies resulting from foreign-currency sales and purchases. Intercompany financing or investments of operating units are preferably carried out in their functional currency or on a hedged basis. Additionally, foreign currency exchange rate exposure is partly balanced by purchasing of goods, commodities and services in the respective currencies, as well as production activities in the local markets. LivaNova's operating units are prohibited from borrowing or investing in foreign currencies on a speculative basis. The target is to keep up to 80% of consolidated EBITDA denominated in material currencies, hedged against USD, LivaNova's reporting currency. At 31 December 2019, designated cash flow hedges carried out for FX net risk positions are denominated in Euro, GBP and Japanese Yen.

Based on our exposure to foreign currency exchange rate risk, a sensitivity analysis indicates that if the USD had uniformly

strengthened by 10% against the GBP, EUR and the Japanese Yen, in the year ended 31 December 2019, the effect on our unrealised income, for our derivatives outstanding at 31 December 2019, would have been approximately $(3.1) million; if the USD had uniformly weakened by 10% against the same currencies, the effect on our unrealised expenses for our derivatives outstanding at 31 December 2019 would have been approximately $3.7 million.

Any gains and losses on the fair value of derivative contracts would generally be offset by gains and losses on the underlying transactions. These offsetting gains and losses are not reflected in the above analysis.

With regard to financial instruments denominated in currencies other than the currency of account of the companies holding them, the currencies involving the greatest exposure are the USD, Euro, GBP and Japanese Yen as indicated below (in thousands):

	31 December 2019					
	EUR	USD	JPY	GBP	Other	Total
Assets						
Cash and cash equivalents denominated in foreign currency	$ –	$ 7,204	$ 1,501	$ 1,757	$ 4,880	$ 15,342
Trade receivables denominated in foreign currency	133	35,015	–	–	12,800	47,948
Other assets denominated in foreign currency	476	565	–	1,282	35	2,358
Total assets	609	42,784	1,501	3,039	17,715	65,648
Liabilities						
Trade payables denominated in foreign currency	624	2,665	125	1,256	198	4,868
Financial liabilities denominated in foreign currency	89,536	2	–	3,908	12	93,458
Other liabilities denominated in foreign currency	605	10	–	2,588	811	4,014
Total liabilities	90,765	2,677	125	7,752	1,021	102,340
Net exposure	$ (90,156)	$ 40,107	$ 1,376	$ (4,713)	$ 16,694	$ (36,692)
Financial derivative assets						
– not for hedging[1]	$ –	$ –	$ –	$ (32)	$ (1)	$ (33)
– for hedging	–	–	49	99	–	148
Total assets	–	–	49	67	(1)	115
Financial derivative liabilities						
– not for hedging[1]	–	–	(92)	(10)	3,180	3,078
– for hedging	122	–	(80)	(260)	–	(218)
Total liabilities	**122**	**–**	**(172)**	**(270)**	**3,180**	**2,860**
Net exposure	**$ (122)**	**$ –**	**$ 221**	**$ 337**	**$ (3,181)**	**$ (2,745)**

(1) For hedging transactions that do not meet the requirements for hedge accounting.

	31 December 2018					
	EUR	USD	JPY	GBP	Other	Total
Assets						
Cash and cash equivalents denominated in foreign currency	$ 88	$ 6,557	$ 2,399	$ 1,536	$ 6,816	$ 17,396
Trade receivables denominated in foreign currency	658	34,707	810	950	9,191	46,316
Financial assets denominated in foreign currency	–	–	–	–	23	23
Other assets denominated in foreign currency	95	1,567	–	100	63	1,825
Total assets	841	42,831	3,209	2,586	16,093	65,560
Liabilities						
Trade payables denominated in foreign currency	(693)	9,801	62	971	(245)	9,896
Financial liabilities denominated in foreign currency	151,176	115	–	–	–	151,291
Other liabilities denominated in foreign currency	2,077	2,693	–	5,028	70	9,868
Total liabilities	152,560	12,609	62	5,999	(175)	171,055
Net exposure	$ (151,719)	$ 30,222	$ 3,147	$ (3,413)	$ 16,268	$ (105,495)

	31 December 2018					
	EUR	USD	JPY	GBP	Other	Total
Financial derivative assets						
– not for hedging[1]	$ –	$ –	$ –	$ 236	$ –	$ 236
Financial derivative liabilities						
– not for hedging[1]	–	(287)	(255)	14	3,701	3,173
– for hedging	815	–	485	340	(286)	1,354
Total liabilities	**815**	**(287)**	**230**	**354**	**3,415**	**4,527**
Net exposure	**$ (815)**	**$ 287**	**$ (230)**	**$ (118)**	**$ (3,415)**	**$ (4,291)**

(1) For hedging transactions that do not meet the requirements for hedge accounting.

Interest Rate Risk

The Company's main interest rate risk arises from long-term debt with variable rates, which expose the Company to cash flow interest rate risk. LivaNova's policy is to hedge, case by case, medium-long term loans from a floating to a fixed rate, to avoid the impact on net earnings of any potential increase of interest rates. During the year ended 31 December 2019, the Company's debt at variable rates was denominated both in EUR and in USD.

As at 31 December 2019, LivaNova Group had the following variable rate financing denominated in USD:

- a local credit facility in favour of LivaNova Colombia Sas for an amount of $2.0 million,
- medium-long term loans from EIB (2017 European Investment Bank) totalling $103.6 million,
- medium-long term loans (2019 Debt Facility) totalling $124.0 million.

As at 31 December 2019, LivaNova Group had the following variable rate financing denominated in Euro:

- medium-long term loans from EIB (2014 European Investment Bank) totalling $28.1 million,
- medium-long term loan from Mediocredito Italiano to Sorin Group Italia S.r.l of 1.0 million.

As at 31 December 2018, LivaNova Group had the following variable rate financing denominated in USD:

- a local credit facility in favour of LivaNova Colombia Sas for an amount of $750,000,
- medium-long term loans from EIB (2017 European Investment Bank) totalling $103.6 million.

As at 31 December 2019 and 31 December 2018, the Group had outstanding derivative contracts to hedge against the risk of interest rate fluctuations in notional amounts of $22.4 million and $38.1 million, respectively, equal to about 7% and 23% of consolidated financial liabilities, respectively.

As at 31 December 2019, if interest rates on Euro-denominated floating rate debt had been 10 basis points higher or lower with all other variables held constant, the calculated pre-tax profit for the year would have been approximately $0.3 million lower or higher, mainly as a result of higher or lower interest expense on the debt. Other components of equity would have been $0.1 million lower as a result of an increase in the interest rate curve with a positive impact on the fair value of our fixed interest rate swaps (derivative designated for hedge accounting) or $8,000 higher as a result of a decrease in the interest rate curve with a negative impact on the fair value of our fixed interest rate swaps (derivatives designed for hedge accounting).

The following assumptions were used for the sensitivity analysis as at 31 December 2019:

- Unhedged financial liabilities: change of +0.10% – (0.10)% in the rate curve at 31 December 2019 relative to Euro and USD rates;
- Hedged financial liabilities: change of +0.50% — (0.05)% in the rate curve at 31 December 2019 relative to Euro rates.

The following assumptions were used for the sensitivity analysis as at 31 December 2018:

- Unhedged financial liabilities: change of +0.10% — (0.10)% in the rate curve at 31 December 2018 relative to Euro rates;
- Hedged financial liabilities: change of +0.50% — (0.05)% in the rate curve at 31 December 2018 relative to Euro rates.

Credit Risk

Our trade receivables 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, the use of credit approvals and credit limits. Refer to "Note 15. Trade Receivables and Other Receivables" for more details. 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.

The maximum theoretical credit risk exposure for LivaNova is an aggregate carrying amount of financial assets at each reporting year date (in thousands):

	31 December 2019	31 December 2018
Financial assets	$ 31,281	$ 27,456
Other assets	2,881	2,148
Trade receivables	257,769	256,135
Other receivables	25,252	28,621
Other financial assets	3,233	714
Cash and cash equivalents	61,137	47,204
Guarantees	40,447	46,653
Total	**$ 422,000**	**$ 408,931**

The risk related to bank accounts, financial assets and assets for financial derivatives is limited since all bank and financial counter-parties have a high rating.

The guarantees issued by LivaNova are primarily due to unconditional bank guarantees, irrevocable letters of credit, bid bonds, guarantees to the governmental tax authorities and tenancy guarantees, and thus, the related credit risk is remote and has been remote as viewed on a historical basis.

Since LivaNova operates in the medical technology sector, there is not a significant risk of customer insolvency, a significant portion of which is related to government agencies, but they are subject to the risk related to cash requirements due to the high level of trade receivables owing to average collection periods (days of sales outstanding) and the ageing of these receivables.

Credit risk is managed on a group basis. For banks and financial institutions, only independently rated parties with a minimum investment grade credit rating are accepted.

For customers, if there is no independent rating, risk control assesses the credit quality of the customer, taking into account its financial position, past experience and other factors. Individual risk limits are set based on internal or external information in accordance with limits set by the Company's Treasury Group. The compliance with and authorization of credit limits by customers is regularly monitored by line management. Additionally, the Company established a policy for expected credit loss provisions, which provides the methodology to be used to calculate an addition to the provision for uncollectable receivables for past-due receivables for each LivaNova entity and the ageing of each receivable.

Changes in provisions for uncollectable receivables are explained in "Note 15. Trade Receivables and Other Receivables."

For the purposes of disclosing the credit risk to which LivaNova is exposed, below is a breakdown of trade receivables by due dates (in thousands):

	Expected Loss Rate[1]	31 December 2019	31 December 2018
Trade receivables			
Performing	0.04% – 6.0%	$ 202,210	$ 195,196
Less than 30 days past due	0.38% – 12.0%	21,440	26,206
31 – 120 days past due	0.38% – 30.0%	20,930	12,463
121 – 365 days past due	0.38% – 30.0%	11,686	10,838
366 – 730 days past due	20.0% – 50.0%	1,257	10,798
Over 730 days past due	30.0% – 100%	246	634
Total		**$ 257,769**	**$ 256,135**

(1) Expected loss rates are applied based upon risk-ranked groupings of countries where the underlying sales are made.

Trade receivables that are past due were $55.6 million and $60.9 million at 31 December 2019 and 31 December 2018, respectively. Of this amount, 26.9% and 26.8% at 31 December 2019 and 31 December 2018, respectively, are receivables from certain government hospitals that pay their suppliers in 1-2 years on average, and the remaining are receivables from private customers, clinics and distributors, some of which have agreed to repayment plans through the renegotiation of payment terms.

At 31 December 2019 and 31 December 2018, 11.3% and 9.1%, respectively, were the receivables from government (public) hospitals. As indicated in the following table (in thousands):

	31 December 2019			31 December 2018		
	Total	Performing	Past Due	Total	Performing	Past Due
By Sector						
Public	$ 37,752	$ 22,791	$ 14,961	$ 34,165	$ 17,824	$ 16,341
Private	220,017	179,419	40,598	221,970	177,372	44,598
Total	**$ 257,769**	**$ 202,210**	**$ 55,559**	**$ 256,135**	**$ 195,196**	**$ 60,939**

Concentrations of risk by region are provided below to further assess the risk related to the trade receivables (in thousands except days of sales outstanding "D.S.O."):

	31 December 2019				31 December 2018			
	D.S.O.	Total	Performing	Past Due	D.S.O.	Total	Performing	Past Due
By Region								
Italy	142	$ 14,422	$ 12,141	$ 2,281	155	$ 16,301	$ 12,252	$ 4,049
Spain	118	6,901	4,735	2,166	131	7,698	5,808	1,890
France	52	5,930	5,286	644	59	7,422	5,730	1,692
Germany	41	4,865	4,422	443	31	3,671	3,363	308
Rest of Europe	43	13,008	11,210	1,798	46	13,911	11,020	2,891
North America	54	84,814	71,104	13,710	57	97,101	74,789	22,312
Japan	100	13,687	13,717	(30)	105	12,951	13,266	(315)
Rest of World	152	114,142	79,595	34,547	157	97,080	68,968	28,112
Total	**81**	**$ 257,769**	**$ 202,210**	**$ 55,559**	**81**	**$ 256,135**	**$ 195,196**	**$ 60,939**

Revenues are derived from a large number of customers with no customers being individually material.

The average collection period was consistent from 31 December 2018 to 31 December 2019 at 81 days. The D.S.O., or average collection period, is calculated as the ratio of total receivables at the end of the year to revenues generated in the 12 preceding months. D.S.O. = (Trade receivables/Revenues) * 365.

For comparability the revenue amounts include VAT.

For the purposes of the disclosure of credit risk, there were no past-due balances of a significant amount related to other assets, other receivables and financial assets.

Capital management

LivaNova maintains a sufficient amount of capital to meet its development needs, fund the business units' operations and ensure the Company continues to be a going concern. The equilibrium of sources of funding, which is also aimed at minimising overall capital costs, is achieved by balancing risk capital contributed on a permanent basis by shareholders, and debt capital, which is in turn diversified and structured with several due dates and in other currencies. To this end, changes in debt levels in relation to both equity and operating profit, and the generation of cash by the business units are constantly kept under control. Please refer to the sections above titled "*Management of Financial Risk*," "*Liquidity Risk*," "*Foreign Currency Exchange Rate Risk*," "*Interest Rate Risk*" and "*Credit Risk*."

Note 5. Fair Value Measurements

Fair value is defined as the price 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 guidance also establishes a hierarchy for inputs used in measuring fair value that maximises the use of observable inputs and minimises 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

No assets or liabilities are classified as Level 1. 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. At 31 December 2019, Level 3 assets include investments in private companies and level 3 liabilities include contingent payments recognised as a result of the acquisition of Inversiones Drilltex SAS and contingent consideration recognised as a result of the acquisitions of ImThera, TandemLife and Miami Instruments.

Assets and Liabilities That Are Measured at Fair Value on a Recurring Basis

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

	Fair Value as at 31 December 2019	Fair Value Measurements Using Inputs Considered as:		
		Level 1	Level 2	Level 3
Assets:				
Financial assets at fair value	$ 26,805	$ –	$ –	$ 26,805
Derivative Assets — for hedging (exchange rates)	535	–	535	–
Derivative Assets — not for hedging (exchange rates)	26	–	26	–
Total assets	**$ 27,366**	**$ –**	**$ 561**	**$ 26,805**
Liabilities:				
Derivative Liabilities — for hedging (exchange rates)	$ 169	$ –	$ 169	$ –
Derivative Liabilities — for hedging (interest rates)	374	–	374	–
Derivative Liabilities — not for hedging (exchange rates)	3,137	–	3,137	–
Earnout for contingent payments	137,349	–	–	137,349
Total Liabilities	**$ 141,029**	**$ –**	**$ 3,680**	**$ 137,349**

	Fair Value as at 31 December 2018	Fair Value Measurements Using Inputs Considered as:		
		Level 1	Level 2	Level 3
Assets:				
Financial assets at fair value	$ 24,823	$ –	$ –	$ 24,823
Derivative Assets — not for hedging (exchange rates)	236	–	236	–
Total assets	**$ 25,059**	**$ –**	**$ 236**	**$ 24,823**
Liabilities:				
Derivative Liabilities — for hedging (exchange rates)	$ 1,354	$ –	$ 1,354	$ –
Derivative Liabilities — for hedging (interest rates)	865	–	865	–
Derivative Liabilities — not for hedging (exchange rates)	3,173	–	3,173	–
Earnout for contingent payments	179,911	–	–	179,911
Total Liabilities	**$ 185,303**	**$ –**	**$ 5,392**	**$ 179,911**

Level 2

To measure the fair value of its derivative transactions (transactions to hedge exchange risk and interest rate risk), we calculate the mark-to-market of each transaction using prices quoted in active markets (e.g. the spot exchange rate of a currency for forward exchange transactions) and observable market inputs processed for the measurement (e.g. the fair value of an interest rate swap using the interest rate curve), or the measurement of an exchange rate option (with the processing of listed prices and observable variables such as volatility).

For all level 2 valuations, we use the information provided by a third-party as a source for obtaining quoted observable prices

and to process market variables. In particular, we use the following techniques to calculate the fair value of derivatives:

- For forward exchange rate transactions, fair value is calculated using the forward market exchange rate on the reporting date for each contract. The difference calculated between this amount and the contractual forward rate is discounted (present value) to the same reporting date;
- For interest rate swaps, the fair value is calculated taking into account the present value of interest flows calculated on the notional amount of each contract using the forward interest rate curve applicable on the reporting date.

The derivative valuation models incorporate the credit quality of counterparts, adjustments for counterparts' credit risk and the Company's own non-performance risk.

Level 3

Financial assets at fair value consist of investments in equity shares and convertible preferred shares of privately held companies for which there are no quoted market prices. These investments fall within Level 3 of the fair value hierarchy due to the use of significant unobservable inputs to determine fair value as the investments are privately held entities without quoted market prices. To determine the fair value of these investments management used all pertinent financial information available related to the entities including valuation reports prepared by third parties. Refer to "Note 13. Financial Assets" for a further discussion of our investments.

Earnout for contingent payments represents our contingent consideration liability. This liability falls within Level 3 of the fair value hierarchy due to the use of significant unobservable inputs to determine fair value as the liability is estimated as the probability of future cash flows, discounted to present value in accordance with accepted valuation methodologies. The discount rate used is determined at the time of measurement. Refer to "Note 21. Contingent Consideration, Litigation Provision Liability and Other Provisions" for a reconciliation of the changes in the fair value of our contingent consideration liability.

Transfers

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. Our policy is to recognise transfers into and out of levels within the fair value hierarchy at the end of the fiscal quarter in which the actual event or change in circumstances that caused the transfer occurs. There were no transfers between Level 1, Level 2 or Level 3 during the years ended 31 December 2019 and 31 December 2018. When a determination is made to classify an asset or liability within Level 3, the determination is based upon the significance of the unobservable inputs to the overall fair value.

Assets and Liabilities that are Measured at Fair Value on a Non-recurring Basis

Non-financial assets such as goodwill, intangible assets and property, plant and equipment are measured at fair value through value in use when there is an indicator of impairment and recorded at fair value only when impairment is recognised. Financial assets such as investments in shares are held at cost, which we believe it is an appropriate estimate of fair value unless more recent information is available sufficient to measure fair value. The fair values of these non-financial assets are based on our own judgements about the assumptions that market participants would use in pricing the asset and on observable market data, when available. We classify these measurements as Level 3 within the fair value hierarchy.

During the year ended 31 December 2018, we acquired the remaining outside interests in ImThera Medical Inc. and as a result, we recognised an overall gain of $11.5 million for the fair value in excess of the cost of our investment of $14.1 million. $4.2 million of the overall gain is included in Gain on acquisitions on our consolidated statement of (loss) income for the year ended 31 December 2018. $7.3 million of the overall gain is recorded as an opening balance adjustment to retained earnings (deficit) upon the adoption of IFRS 9 on 1 January 2018.

Financial Instruments Not Measured at Fair Value

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

The carrying value of our long and short-term debt as of 31 December 2019 and 31 December 2018 was $337.4 million and $168.3 million, respectively, which we believe approximates fair value.

Note 6. Financial Instruments

The Group uses several instruments to fund its operating activities including short and long-term debt from credit institutions and other lenders and short-term bank loans. The Group's other financial instruments consist of trade payables and receivables resulting from operating activities, investments in other companies, assets and liabilities for financial derivatives (primarily interest rate swaps and forward foreign currency contracts) and other receivables and payables other than those related to staff, tax authorities and welfare agencies.

Classification of financial instruments

The classification of financial instruments measured at fair value changed from being measured through OCI to being

measured in the profit or loss. With regard to classification of financial instruments on the basis of the types as specified in IFRS 9, the following should be noted:

- Assets and liabilities for financial derivatives related to contracts entered into to mitigate exchange risk on imports and exports are classified under "Financial assets/liabilities at fair value through OCI" when they meet the requirements for being recognised as hedge accounting instruments, and under "Financial assets/liabilities at fair value through profit or loss" when these requirements are not met.
- Assets and liabilities for financial derivatives related to contracts entered into to mitigate interest rate risk are classified under "Financial assets/liabilities at fair value through OCI" when they meet the requirements for being recognised as hedge accounting instruments, and under "Financial assets/liabilities at fair value through profit or loss" when these requirements are not met.

Classification of Financial Instruments at 31 December 2019

	Classification						Carrying Amount			
(in thousands)	Financial Assets/Liabilities at Fair Value Through Profit or Loss	Receivables and Loans Measured at Amortised Cost	Financial Assets Measured at Amortised Cost	Financial Assets at Fair Value Through Profit or Loss	Financial Liabilities at Amortised Cost	Financial Assets/Liabilities at Fair Value Through OCI	Total	Current Portion	Non-Current Portion	Fair Value
Assets										
Financial assets	$ –	$ –	$ 4,476	$ 26,805	$ –	$ –	$ 31,281	$ –	$ 31,281	$ 31,281
Other assets	–	2,881	–	–	–	–	2,881	–	2,881	2,881
Trade receivables	–	257,769	–	–	–	–	257,769	257,769	–	257,769
Other receivables	–	25,005	–	–	–	–	25,005	25,005	–	25,005
Financial derivative assets	(33)	–	–	–	–	148	115	115	–	115
Other financial assets	–	3,236	–	–	–	–	3,236	3,236	–	3,236
Cash and cash equivalents	–	61,137	–	–	–	–	61,137	61,137	–	61,137
Total financial assets	**$ (33)**	**$ 350,028**	**$ 4,476**	**$ 26,805**	**$ –**	**$ 148**	**$ 381,424**	**$ 347,262**	**$ 34,162**	**$ 381,424**
Liabilities										
Financial liabilities	$ –	$ –	$ –	$ –	$ 333,215	$ –	$ 333,215	$ 73,112	$ 260,103	$ 334,372
Lease liabilities	–	–	–	–	57,534	–	57,534	11,316	46,218	57,534
Other liabilities	–	–	–	–	4,737	–	4,737	–	4,737	4,737
Trade payables	–	–	–	–	85,038	–	85,038	85,038	–	85,038
Other payables	–	–	–	–	70,007	–	70,007	70,007	–	70,007
Financial derivative liabilities	3,078	–	–	–	–	156	3,234	3,173	61	3,234
Other financial liabilities	–	–	–	–	4,214	–	4,214	4,214	–	4,214
Total financial liabilities	**$ 3,078**	**$ –**	**$ –**	**$ –**	**$ 554,745**	**$ 156**	**$ 557,979**	**$ 246,860**	**$ 311,119**	**$ 559,136**

	Classification of Financial Instruments at 31 December 2018									
	Classification						Carrying Amount			
(in thousands)	Financial Assets/Liabilities at Fair Value Through Profit or Loss	Receivables and Loans Measured at Amortised Cost	Financial Assets Measured at Amortised Cost	Financial Assets at Fair Value Through Profit or Loss	Financial Liabilities at Amortised Cost	Financial Liabilities at Fair Value Through OCI	Total	Current Portion	Non-Current Portion	Fair Value
Assets										
Financial assets	$ –	$ –	$ 2,633	$ 24,823	$ –	$ –	$ 27,456	$ –	$ 27,456	$ 27,456
Other assets	–	2,148	–	–	–	–	2,148	–	2,148	2,148
Trade receivables	–	256,135	–	–	–	–	256,135	256,135	–	256,135
Other receivables	–	28,621	–	–	–	–	28,621	28,621	–	28,621
Financial derivative assets	236	–	–	–	–	–	236	236	–	236
Other financial assets	–	714	–	–	–	–	714	714	–	714
Cash and cash equivalents	–	47,204	–	–	–	–	47,204	47,204	–	47,204
Total financial assets	**$ 236**	**$ 334,822**	**$ 2,633**	**$ 24,823**	**$ –**	**$ –**	**$ 362,514**	**$ 332,910**	**$ 29,604**	**$ 362,514**
Liabilities										
Financial liabilities	$ –	$ –	$ –	$ –	$ 162,841	$ –	$ 162,841	$ 23,303	$ 139,538	$ 163,169
Other liabilities	–	–	–	–	3,178	–	3,178	–	3,178	3,178
Trade payables	–	–	–	–	75,182	–	75,182	75,182	–	75,182
Other payables	–	–	–	–	69,238	–	69,238	69,238	–	69,238
Financial derivative liabilities	3,173	–	–	–	–	2,219	5,392	5,063	329	5,392
Other financial liabilities	–	–	–	–	5,491	–	5,491	5,491	–	5,491
Total financial liabilities	**$ 3,173**	**$ –**	**$ –**	**$ –**	**$ 315,930**	**$ 2,219**	**$ 321,322**	**$ 178,277**	**$ 143,045**	**$ 321,650**

Note 7. Business Combinations

ImThera

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. ImThera has a commercial presence in the European market, and an FDA pivotal study is ongoing in the U.S.

On 16 January 2018, we acquired the remaining 86% outstanding interest in ImThera for cash consideration of up to $225 million. Cash in the amount of $78.3 million was paid at closing with the balance to be paid based on achievement of a certain regulatory milestone and a sales-based earnout.

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

Cash	$ 78,332
Contingent consideration	112,744
Fair value of our interest in ImThera prior to the acquisition[(1)]	25,580
Fair value of consideration transferred	**$ 216,656**

(1) The fair value of our previously held interest in ImThera was determined based on the fair value of total consideration transferred and application of a discount for lack of control. As a result, we recognised a gain of $11.5 million for the fair value in excess of our carrying value of $14.1 million. The gain is included in Gain on acquisitions on our consolidated statement of (loss) income for the year ended 31 December 2018. $7.3 million of the overall gain is recorded as an opening balance adjustment to retained earnings (deficit) upon the adoption of IFRS 9 on 1 January 2018.

The following table presents the purchase price allocation at fair value for the ImThera acquisition including certain measurement period adjustments (in thousands):

	Initial Purchase Price Allocation	Measurement Period Adjustments[1]	Adjusted Purchase Price Allocation
In-process research and development[2]	$ 151,605	$ 10,677	$ 162,282
Developed technology	5,661	(5,661)	–
Goodwill	87,063	(4,467)	82,596
Deferred income tax liabilities, net[3]	27,980	1,278	29,258
Other assets and liabilities, net	836	200	1,036
Net assets acquired	**$ 217,185**	**$ (529)**	**$ 216,656**

(1) During the second quarter of 2018, measurement period adjustments were recorded based upon new information obtained about facts and circumstances that existed as of the acquisition date.

(2) The fair value of IPR&D was determined using the income approach, which is a valuation technique that provides a fair value estimate based on the market participant expectations of cash flows the asset would generate. The cash flows were discounted commensurate with the level of risk associated with the asset. The discount rates were developed after assigning a probability of success to achieving the projected cash flows based on the current stage of development, inherent uncertainty in reaching certain regulatory milestones and risks associated with commercialization of the product. The IPR&D amount is included in intangible assets, net on the consolidated balance sheet at 31 December 2018.

(3) The amounts are presented net of deferred tax assets acquired.

Goodwill arising from the ImThera acquisition, which is not deductible for tax purposes, primarily represents the synergies anticipated between ImThera and our existing Neuromodulation business. The assets acquired, including goodwill, are recognised in our Neuromodulation segment.

The results of the ImThera acquisition added $0.3 million in revenue and $8.8 million in operating losses during the year ended 31 December 2018. Additionally, we recognised ImThera acquisition-related expenses of approximately $0.7 million for legal and valuation expenses during the year ended 31 December 2018. These expenses are included within "Selling, general and administrative" expenses on our consolidated statement of (loss) income. Pro forma financial information, assuming the ImThera acquisition had occurred as of the beginning of the calendar year prior to the year of acquisition, was not material for disclosure purposes.

The ImThera business combination involved contingent consideration arrangements composed of potential cash payments upon the achievement of a certain regulatory milestone 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 plan. Both arrangements are Level 3 fair value measurements and include the following significant unobservable inputs (in thousands):

ImThera Acquisition	Fair value at 16 January 2018	Valuation Technique	Unobservable Input	Ranges
Regulatory milestone-based payment	$ 50,429	Discounted cash flow	Discount rate	4.3% – 4.7%
			Probability of payment	85% – 95%
			Projected payment years	2020 – 2021
Sales-based earnout	62,315	Monte Carlo simulation	Risk-adjusted discount rate	11.5%
			Credit risk discount rate	4.7% – 5.8%
			Revenue volatility	29.3%
			Probability of payment	85% – 95%
			Projected years of earnout	2020 – 2025
	$ 112,744			

There have been no material changes to the valuation inputs above, with the exception of a delay in commercialization as discussed in "Note 21. Contingent Consideration, Litigation Provision Liability and Other Provisions."

TandemLife

TandemLife is focused on the delivery of leading-edge temporary life support systems, including cardiopulmonary and respiratory support solutions. TandemLife complements our Cardiovascular segment portfolio and expands our existing product line of cardiopulmonary products.

On 4 April 2018, we acquired Cardiac Assist, Inc., doing business as TandemLife for cash consideration of up to $254 million. Cash of $204 million was paid at closing with up to $50 million in contingent consideration based on the achievement of regulatory milestones.

The following table presents the acquisition date fair value of the consideration transferred (in thousands):

Cash	$	203,671
Contingent consideration		40,190
Fair value of consideration transferred	**$**	**243,861**

The following table presents the purchase price allocation at fair value for the TandemLife acquisition including certain measurement period adjustments (in thousands):

	Initial Purchase Price Allocation	Measurement Period Adjustments[1]	Adjusted Purchase Price Allocation
In-process research and development[2][3]	$ 110,977	$ (3,474)	$ 107,503
Trade names[2]	11,539	–	11,539
Developed technology[2]	6,387	–	6,387
Goodwill	118,917	(797)	118,120
Inventory	10,296	(140)	10,156
Other assets and liabilities, net	3,632	242	3,874
Deferred income tax liabilities, net[4]	17,887	4,169	(13,718)
Net assets acquired	**$ 243,861**	**$ –**	**$ 243,861**

(1) During the third quarter of 2018, measurement period adjustments were recorded based upon new information regarding future estimates of R&D expenses that existed as of the acquisition date. In addition, during the first quarter of 2019, measurement period adjustments related to finalising our tax attributes were recorded, which resulted in an increase of $3.3 million in deferred tax assets and a commensurate decrease to goodwill.

(2) The amounts are included in intangible assets, net on the consolidated balance sheet at 31 December 2018. Trade names and developed technology are amortized over remaining useful lives of 15 and 2 years, respectively.

(3) The fair value of IPR&D was determined using the income approach, which is a valuation technique that provides a fair value estimate based on the market participant expectations of cash flows the asset would generate. The cash flows were discounted commensurate with the level of risk associated with the asset. The discount rates were developed after assigning a probability of success to achieving the projected cash flows based on the current stage of development, inherent uncertainty in reaching certain regulatory milestones and risks associated with commercialization of the product.

(4) The amounts are presented net of deferred tax assets and include deferred tax assets acquired.

Goodwill arising from the TandemLife acquisition, which is not deductible for tax purposes, primarily represents the synergies anticipated between TandemLife and our existing Cardiovascular business. The assets acquired, including goodwill, are recognised in our Cardiovascular segment.

The results of the TandemLife acquisition added $19.5 million in revenue and $14.0 million in operating losses during the year ended 31 December 2018. Additionally, we recognised TandemLife acquisition-related expenses of approximately $2.1 million for legal and valuation expenses during the year ended 31 December 2018. These expenses are included within Selling, general and administrative expenses on our consolidated statement of (loss) income. Pro forma financial information, assuming the TandemLife acquisition had occurred as of the beginning of the calendar year prior to the year of acquisition, was not material for disclosure purposes.

The TandemLife business combination involved a contingent consideration arrangement composed of potential cash payments upon the achievement of certain regulatory milestones. The arrangement is a Level 3 fair value measurement and includes the following significant unobservable inputs (in thousands):

TandemLife Acquisition	Fair value at 4 April 2018	Valuation Technique	Unobservable Input	Ranges
Regulatory milestone-based payments	$ 40,190	Discounted cash flow	Discount rate	4.2% – 4.8%
			Probability of payments	75% – 95%
			Projected payment years	2019 – 2020

There have been no material changes to the valuation inputs above.

Miami Instruments

On 12 June 2019, we acquired the minimally invasive cardiac surgery instruments business from Miami Instruments, LLC ("Miami Instruments") for cash consideration of up to $17.0 million. The related operations have been integrated into our Cardiovascular business franchise as part of our Heart Valves portfolio. Cash of $10.8 million was paid at closing with up to $6.0 million in contingent consideration based on achieving certain milestones. In connection with this acquisition, we recognised $14.7 million in developed technology and IPR&D intangible assets and $1.5 million in goodwill. Pro forma financial information, assuming the Miami Instruments acquisition had occurred as of the beginning of the calendar year prior to the year of acquisition, was not material for disclosure purposes.

Note 8. Discontinued Operations

In November 2017, we concluded that the sale of our Cardiac Rhythm Management ("CRM") business franchise represented a strategic shift in our business that would have a major effect on future operations and financial results. Accordingly, the operating results of CRM are classified as discontinued operations on our consolidated statement of (loss) income for all the years presented.

We completed the CRM Sale on 30 April 2018 to MicroPort Cardiac Rhythm B.V. and MicroPort Scientific Corporation for total cash proceeds of $195.9 million, less cash transferred of $9.2 million, less a closing working capital adjustment. In conjunction with the sale, we entered into transition services agreements to provide certain support services generally for up to twelve months from the closing date of the sale. The services include, among others, accounting, information technology, human resources, quality assurance, regulatory affairs, supply chain, clinical affairs and customer support. During the years ended 31 December 2019 and 31 December 2018 we recognised income of $0.9 million and $2.8 million, respectively, for providing these services. Income recognised related to the transition services agreements is recorded as a reduction to the related expenses in the associated expense line items on our consolidated statement of (loss) income.

The following table represents the financial results of CRM presented as net income (loss) from discontinued operations, net of tax on the consolidated statement of (loss) income (in thousands):

	Year Ended 31 December	
	2019	**2018**
Net sales	$ –	$ 77,366
Costs and expenses:		
Cost of sales	(43)	28,019
Selling, general and administrative expenses	(161)	43,198
Research and development	(161)	16,551
Exceptional items	–	(917)
Operating income (loss)	365	(9,485)
Foreign exchange and other gains	–	102
Share of loss from equity accounted investments	–	(1,211)
Income (loss) before tax	365	(10,594)
Income tax benefit	–	640
Net income (loss) from discontinued operations	**$ 365**	**$ (9,954)**

The following exceptional items are included within operating loss above (in thousands):

	Year Ended 31 December	
	2019	**2018**
CRM (Revaluation) Impairment	$ –	$ (1,213)
Restructuring expenses	–	651
Gain on sale of CRM	–	(355)
Merger and integration expenses	–	–
Total exceptional items	**$ –**	**$ (917)**

The following table represents the cash flows from operating, investing and financing activities of CRM presented within the results of the consolidated statement of cash flows (in thousands):

	Year Ended 31 December	
	2019	2018
Net cash provided by operating activities	$ –	$ 1,018
Net cash used in investing activities	–	(1,018)
Net change in cash and cash equivalents	–	–
Cash and cash equivalents at beginning of year	–	–
Cash and cash equivalents at end of year	**$ –**	**$ –**

Note 9. Restructuring

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. A restructuring provision is recorded when a plan is approved and communicated to employees. Costs associated with these plans were reported as restructuring expenses in the operating results of our consolidated statement of (loss) income.

In December 2018, we initiated a reorganization plan (the "2018 Plan") in order to reduce manufacturing and operational costs associated with our Cardiovascular facilities in Saluggia and Mirandola, Italy and Arvada, Colorado. The 2018 Plan resulted in a net reduction of approximately 75 personnel and was completed prior to the end of 2019.

In November 2019, we initiated a reorganization plan (the "2019 Plan") to streamline our organizational structure in order to address new regulatory requirements, create efficiencies, improve profitability and ensure business continuity. As a result, we incurred restructuring expenses of $4.4 million during the year ended 31 December 2019, primarily associated with severance costs for approximately 35 impacted employees.

Additionally, we ended our Caisson transcatheter mitral valve replacement ("TMVR") program effective 31 December 2019 after determining that it was no longer viable to continue to invest in the program. As a result, we recognised restructuring expenses of $3.5 million during the year ended 31 December 2019, primarily associated with severance costs for approximately 50 impacted employees.

We expect our restructuring actions will result in an incremental benefit to operating (loss) income from continuing operations, primarily through reductions to cost of sales, selling, general and administrative and research and development from the 2019 Plan and to research and development from the Caisson TMVR restructuring plan.

The changes in the restructuring plans' liabilities during the year are indicated below (in thousands):

	Employee Severance and Other Termination Costs	Other	Total
Balance 31 December 2017	**$ 3,889**	**$ 2,625**	**$ 6,514**
Charges	15,641	925	16,566
Cash payments	(9,335)	(481)	(9,816)
Balance 31 December 2018	**10,195**	**3,069**	**13,264[1]**
Charges	11,472	782	12,254
Cash payments	(17,570)	(2,451)	(20,021)
Balance 31 December 2019	**$ 4,097**	**$ 1,400**	**$ 5,497[2]**

(1) The restructuring plans' liabilities are recorded in the Consolidated Balance Sheet as $9.4 million within provisions and $3.9 million within other payables as of 31 December 2018.

(2) The restructuring plans' liabilities are recorded in the Consolidated Balance Sheet as $2.5 million within provisions and $3.0 million within other payables as of 31 December 2019.

The following table presents restructuring expense by reportable segment (in thousands):

	Year Ended 31 December	
	2019	2018
Cardiovascular[1]	$ 3,592	$ 11,497
Neuromodulation	1,082	1,595
Other[2]	7,580	2,823
Restructuring expense from continuing operations	12,254	15,915
Discontinued operations	–	651
Total	**$ 12,254**	**$ 16,566**

(1) Cardiovascular restructuring expense for the year ended 31 December 2018 included $6.5 million of 2018 Plan expenses.
(2) Other restructuring expense for the year ended 31 December 2019 included $3.5 million of Caisson restructuring expenses.

Note 10. Property, Plant and Equipment

(in thousands)	Land	Buildings and Building Improvements	Equipment, Other, Furniture, Fixtures	Capital Investment in Process	Total
At 31 December 2018					
Gross amount	$ 15,866	$ 82,035	$ 169,315	$ 20,228	$ 287,444
Accumulated depreciation and impairment	–	(15,244)	(91,848)	–	(107,092)
Net amount	**$ 15,866**	**$ 66,791**	**$ 77,467**	**$ 20,228**	**$ 180,352**
At 31 December 2019					
Gross amount	$ 15,165	$ 86,814	$ 177,756	$ 15,760	$ 295,495
Accumulated depreciation and impairment	–	(18,668)	(107,906)	–	(126,574)
Net amount	**$ 15,165**	**$ 68,146**	**$ 69,850**	**$ 15,760**	**$ 168,921**

Changes during the year in the net amount of each category of property, plant and equipment are indicated below (in thousands):

	Land	Buildings and Building Improvements	Equipment, Other, Furniture, Fixtures	Capital Investment in Process	Total
Net Amount at 31 December 2017	$ 16,293	$ 68,738	$ 83,014	$ 9,944	$ 177,989
Additions	–	2,096	11,799	21,848	35,743
Acquisitions of ImThera and TandemLife	–	–	1,817	907	2,724
Disposals	–	–	(920)	(1,029)	(1,949)
Impairment	–	–	17	(149)	(132)
Depreciation	–	(4,135)	(22,490)	–	(26,625)
Currency translation loss	(427)	(2,070)	(2,639)	(317)	(5,453)
Reclassifications	–	2,162	6,869	(10,976)	(1,945)
Net Amount at 31 December 2018	**15,866**	**66,791**	**77,467**	**20,228**	**180,352**
Additions	–	2,359	8,847	13,389	24,595
Disposals	–	(279)	(902)	(98)	(1,279)
Impairment[1]	–	–	(1,643)	(1,564)	(3,207)
Depreciation	–	(4,727)	(20,218)	–	(24,945)
Currency translation loss	(164)	(634)	(849)	(134)	(1,781)
Assets held for sale	(537)	(148)	–	–	(685)
Reclassifications[2]	–	4,784	7,148	(16,061)	(4,129)
Net Amount at 31 December 2019	**$ 15,165**	**$ 68,146**	**$ 69,850**	**$ 15,760**	**$ 168,921**

(1) In November 2019, we announced that we would be ending our Caisson TMVR program. The announcement triggered an evaluation of finite for impairment. Impairment primarily consists of the impairment of certain assets of Caisson.
(2) Total reclassifications represents reclassifications of $2.8 million to intangible assets and $1.3 million to inventories.

Note 11. Goodwill and Intangible Assets

(in thousands)	Goodwill	Developed Technology	Customer Relationships	Trade Names	In-Process R&D	Other Intangible Assets	Software	Total
At 31 December 2018								
Gross amount	$ 960,437	$ 176,476	$ 317,292	$ 25,260	$ 358,785	$ 897	$ 33,991	$ 912,701
Accumulated amortisation and impairment	–	(39,145)	(57,350)	(11,440)	–	(336)	(22,943)	(131,214)
Net amount	**$ 960,437**	**$ 137,331**	**$ 259,942**	**$ 13,820**	**$ 358,785**	**$ 561**	**$ 11,048**	**$ 781,487**
At 31 December 2019								
Gross amount	$ 582,324	$ 293,785	$ 320,023	$ 25,004	$ 115,800	$ 974	$ 39,055	$ 794,641
Accumulated amortisation and impairment	–	(87,593)	(126,849)	(14,811)	–	(711)	(26,913)	(256,877)
Net amount	**$ 582,324**	**$ 206,192**	**$ 193,174**	**$ 10,193**	**$ 115,800**	**$ 263**	**$ 12,142**	**$ 537,764**

The changes in the net carrying value of each class of intangible assets during the year are indicated below (in thousands):

	Goodwill	Developed Technology	Customer Relationships	Trade Names	In-Process R&D	Other Intangible Assets	Software	Total
Net Amount at 31 December 2017	$ 787,929	$ 152,182	$ 287,027	$ 6,596	$ 89,000	$ 592	$ 14,370	$ 549,767
Acquisitions of ImThera and TandemLife	204,042	6,387	–	11,539	269,785	–	33	287,744
Additions	–	–	–	–	–	310	927	1,237
Disposals	–	–	–	–	–	–	(11)	(11)
Amortisation	–	(14,505)	(18,208)	(4,158)	–	(298)	(6,121)	(43,290)
Impairment	–	–	–	–	–	–	(2)	(2)
Currency translation gains	(31,534)	(6,823)	(8,801)	(157)	–	3	(125)	(15,903)
Reclassifications	–	90	(76)	–	–	(46)	1,977	1,945
Net Amount at 31 December 2018	960,437	137,331	259,942	13,820	358,785	561	11,048	781,487
Measurement period adjustments[1]	(3,326)	–	–	–	–	–	–	–
Acquisitions	1,550	10,900	–	–	3,813	–	–	14,713
Additions	–	–	4,502	–	–	418	3,603	8,523
Disposals	–	–	–	–	–	–	(242)	(242)
Amortisation	–	(18,445)	(18,006)	(3,554)	–	(369)	(5,326)	(45,700)
Impairment	(379,493)	(30,231)	(51,693)	–	(139,295)	–	(15)	(221,234)
Currency translation gains	3,156	(866)	(1,571)	(73)	–	(1)	(70)	(2,581)
Reclassifications[2]	–	107,503	–	–	(107,503)	(346)	3,144	2,798
Net Amount at 31 December 2019	**$ 582,324**	**$ 206,192**	**$ 193,174**	**$ 10,193**	**$ 115,800**	**$ 263**	**$ 12,142**	**$ 537,764**

(1) During the first quarter of 2019, measurement period adjustments related to finalising our tax attributes were recorded, which resulted in an increase of $3.3 million in deferred tax assets and a commensurate decrease to goodwill. Refer to "Note 7. Business Combinations."

(2) During the third quarter of 2019, upon receiving FDA approval of the LifeSPARC system, we reclassified the IPR&D asset of $107.5 million from the acquisition of TandemLife to finite-lived developed technology intangible assets and began amortizing the intangible asset over a useful life of 15 years.

Amortisation of intangible assets charged to the consolidated statement of (loss) income totalled $45.7 million and $43.3 million for the year ended 31 December 2019 and 31 December 2018, respectively, and is included within cost of sales, selling, general and administrative and research and development.

The amortisation periods for our finite-lived intangible assets as at 31 December 2019 were as follows:

	Minimum Life in Years	Maximum Life in Years
Developed technology[1]	2	19
Customer relationships[1]	15	18
Trade names	15	15
Other intangible assets	5	10
Software	5	10

(1) As at 31 December 2019, developed technology from the merger had a remaining useful life of 13 years to 14 years, customer relationships from the merger had a remaining useful life of 11 years and developed technology from the TandemLife acquisition had a remaining useful life of 10 years.

Impairment of Goodwill and Intangible Assets

Our CGUs consist of Cardiopulmonary, Heart Valves, Advanced Circulatory Support, Obstructive Sleep Apnea, and Neuromodulation. The carrying amount of goodwill by CGU (in thousands):

	31 December 2019	31 December 2018
Cardiopulmonary	$ 65,450	$ 64,970[1]
Heart Valves	–	331,010[1]
Advanced Circulatory Support	118,120	121,446
Obstructive Sleep Apnea	82,595	82,596
Neuromodulation	316,159	315,943
TMVR	–	44,472
Total	**$ 582,324**	**$ 960,437**

(1) As part of the 2019 quantitative assessment of our CGUs, the allocation of goodwill between Cardiopulmonary and Heart Valves was represented to better reflect the relative valuations of the respective businesses at the date of the merger in 2015. The goodwill allocation was previously reported as $191.8 million and $204.2 million for Cardiopulmonary and Heart Valves, respectively.

We performed quantitative assessments of our CGUs as of 31 December 2019 in accordance with IAS 36 "Impairment of Assets." The methodology applied to our CGUs value in use calculations, reflecting past experience and external sources of information, including Board approved budgets based on pre-tax cash flows with discount rates between 10% and 24% (9% and 20% as of 31 December 2018) derived from the Company's benchmarked weighted average cost of capital (WACC) and a long-term nominal growth rate of 2% for all CGUs. The discount rates utilized in the assessments of our Cardiopulmonary, Heart Valves and Neuromodulation CGUs were 13.5%, 10.0%, and 10.5%, respectively. The discount rates utilized in the assessments of our Advanced Circulatory Support and Obstructive Sleep Apnea CGUs were 24.0% and 19.0%, respectively. Based on the quantitative assessments performed, we determined that our Heart Valves CGU was impaired and accordingly recorded impairments of $335.0 million, $51.7 million and $30.2 million to goodwill, customer relationships and developed technology offset by a reduction in deferred tax liabilities of $22.1 million. The carrying values of customer relationships and developed technology associated with our Heart Valves CGU at 31 December 2019 was $45.3 million and $26.6 million, respectively. The goodwill associated with our Cardiopulmonary, Advanced Circulatory Support, Obstructive Sleep Apnea and Neuromodulation CGU's was not determined to be impaired.

The value in use models used for calculating fair value is most sensitive to the discount rate as well as the expected revenue growth rate and the terminal growth rate for extrapolation purposes. We performed a sensitivity analysis for each of these assumptions for each CGU and determined that an increase of 0.5% in the discount rate used or a decrease of 0.5% in the expected revenue growth rate or terminal growth rate would not result in an impairment of goodwill associated with our Cardiopulmonary, Advanced Circulatory Support, and Neuromodulation CGU's. However, a decrease of 0.5% in the expected revenue growth rate and terminal growth rate or an increase of 0.5% in the discount rate used would result in an impairment of goodwill associated with our Obstructive Sleep Apnea CGU of approximately $5.0 million and $10.0 million, respectively. Additionally, a decrease of 0.5% in the expected revenue growth rate and terminal growth rate or an increase of 0.5% in the discount rate used would result in an additional impairment of intangible assets associated with our Heart Valves CGU of approximately $8.8 million and $9.8 million, respectively.

In November 2019, we announced that we would be ending our Caisson TMVR program. The announcement triggered an evaluation of finite and indefinite lived assets for impairment.

As a result, we fully impaired the IPR&D asset and goodwill of $89.0 million and $44.5 million, respectively.

During the second quarter of 2019, we determined that there would be a 12 month delay in the estimated commercialization date of our obstructive sleep apnea product currently under development, which was acquired in the ImThera acquisition. This delay constituted a triggering event that required an evaluation of the IPR&D asset arising from the ImThera acquisition for impairment. Based on the assessment performed, we determined that the IPR&D asset was impaired and as a result, recorded an impairment of $50.3 million, which is included in our Neuromodulation segment. The carrying value of the IPR&D asset as of 31 December 2019 is $112.0 million. The estimated fair value of IPR&D was determined using the income approach. Estimating the fair value of the IPR&D asset requires various assumptions, including revenue growth rates, timing and probability of commercialization and the discount rate. Future delays in commercialization, the probability of commercialization or changes in management estimates could result in further material impairment. Refer to "Note 7. Business Combinations."

Additionally, as of 31 December 2019, we performed quantitative assessments of the IPR&D recognised in conjunction with the acquisition of ImThera and Miami Instruments. The value in use calculations have been based on projection periods ranging from 22 to 23 years. The assessments included a discounted cash flow model test that included discount rates ranging from 12% to 18% and a long-term growth rate of 2%. Based on the assessments performed, we determined that the IPR&D assets were not impaired.

IAS 36 provides that, if there is any reasonably possible change to a key assumption that would cause the carrying amount of an IPR&D asset to exceed its recoverable amount, further disclosures are required. The fair value of the IPR&D asset recognised in conjunction with the acquisition of ImThera exceeded its carrying value by approximately 12% or $13.3 million as of 31 December 2019. An increase of 0.5% in the discount rate used would decrease the fair value of the ImThera IPR&D assets calculated by approximately $10 million. A decrease of 0.5% in the expected revenue growth rate would decrease the fair value of the ImThera IPR&D assets calculated by approximately $6 million. Additionally, future delays in commercialization or changes in management estimates could result in a fair value that is below the carrying amount.

Note 12. Investments in Subsidiaries

Subsidiaries. The Company had the following subsidiaries as at 31 December 2019:

	Registered Office	Country of Incorporation	% Consolidated Group Ownership
LivaNova PLC (Italian Branch)	Via Benigno Crespi 17 20159 Milan, Italy	Italy	100
Caisson Interventional LLC	6500 Wedgwood Rd., Maple Grove, MN 55311	U.S.	100
CardiacAssist, Inc. Dba TandemLife	240 Alpha Drive, Pittsburgh, PA 15238	U.S.	100
Cyberonics Holdings LLC	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100
Cyberonics Latam SRL	Edificio B49, 51 Ave O, Zona Franca Coyo, Coyo-Alajeuela, Costa Rica 20113	Costa Rica	100
Cyberonics Netherlands CV	100 Cyberonics Boulevard, Houston, TX 77058 USA	Netherlands	100
Cyberonics Spain SL	100 Cyberonics Boulevard, Houston, TX 77058 USA	Spain	100
ImThera Medical, Inc.	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100
LivaNova Australia PTY Limited	Tower 2, 123 St Georges Terrace Perth, WA 6000	Australia	100
LivaNova Austria GmbH	Millennium Tower, Handelskai 94-96, 1200 Wien	Austria	100
LivaNova Belgium NV	Ikaroslaan 83, 1930 Zaventem, Belgium	Belgium	100
LivaNova Brasil Comércio e Distribuição de Equipamentos Médico-hospitalares Ltda	Rua Liege, 54 — Vila Vermelha, 04298-070 — São Paulo — SP — Brasil	Brazil	100
LivaNova Canada Corp.	280 Hillmount Road, Unit 8, Markham, ON L6C 3A1, Canada	Canada	100
LivaNova Cayman Limited	Cannon Place, Grand Cayman, Cayman Islands	Cayman Islands	100
LivaNova Chile SpA	Santiago, Chile	Chile	100

	Registered Office	Country of Incorporation	% Consolidated Group Ownership
LivaNova Colombia Sas	Avenida Calle 80 No. 69-70 Bodega 37, Bogotá, Colombia	Colombia	100
LivaNova Deutschland GmbH	Lindberghstrasse 25, D — 80939 München, Germany	Germany	100
LivaNova España, S.L.	Avenida Diagonal 123, planta 10, 08005, Barcelona, Spain	Spain	100
LivaNova Finland OY	c/o Kalliolaw Asianajotoimisto Oy, Södra kajen 12, 00130 Helsinki, Finland	Finland	100
LivaNova Holding S.r.l.	Via Benigno Crespi, 17 — 20159 Milano, Italy	Italy	100
LivaNova Hong Kong Limited	9/F, Wah Yuen Bldg, 149 Queen's Road, Central, Hong Kong, Hong Kong	Hong Kong	100
LivaNova Hungary Limited Liability Company	H-1062 Budapest, Váci út 1-3, A épület, 6. em.	Hungary	100
LivaNova Inc.	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100
LivaNova India Private Limited	603-A, Copia Corporate Suites, Building #09, Jasola District Centre, New Delhi, India 110025	India	100
LivaNova IP Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100
LivaNova Japan K.K.	11-1 Nagatacho 2 chome, Chiyoda-ku, Tokyo, 100-6110 Japan	Japan	100
LivaNova (Thailand) Ltd	4,4/5 Zen World Tower Level 12, Rajdamri Road, Pathumwan, Pathumwan, Bangkok, 10330, Thailand	Thailand	100
LivaNova (China) Medical Technology Co. Ltd	Room 3006, 30F, C Building, SML Centre, No. 610 Xujiahui Road, Huangpu District, Shanghai, 200025, China	China	100
LivaNova Malaysia Sdn. Bhd.	Level 10, Meara LGB 1Jalan Wan Kadir Taman Tun Dr. Ismail 60000, Kuala Lumpur, Malaysia	Malaysia	100
LivaNova Nederland N.V.	Westerdoksdijk 423, 1013 BX, Amsterdam, Netherlands	Netherlands	100
LivaNova Norway AS	c/o AmestoAccounthouse AS, Smeltedigelen 1, 0195 Oslo, Norway	Norway	100
LivaNova Poland Sp. Z o.o.	Park Postepu Bud A Ul. Postepu 21 PL-02 676 Warszawa, Poland	Poland	100
LivaNova SAS	200 Avenue de Paris, Châtillon, 92320, France	France	100
LivaNova Scandinavia AB	Djupdalsvägen 16, 192 51 Sollentuna, Sweden	Sweden	100
LivaNova Singapore Pte Ltd	The Adelphi, 1 Coleman Street, #10-07, Singapore 179803	Singapore	100
LivaNova Site Management S.r.l.	Via Benigno Crespi 17 20159 Milan, Italy	Italy	100
LivaNova Switzerland SA	Rue du Grand-Pont 12, 1003 Lausanne	Switzerland	100
LivaNova Taiwan Co. Ltd	2F., No. 101, Songren Rd., Xinyi Dist., Taipei City, 11073, Taiwan (R.O.C.)	Taiwan	100
LivaNova Turkey Medikal Limited Sirketi	Nart E-office, Pol Center Ecza Sok. No.4 Levent Istanbul	Turkey	100
LivaNova UK Limited	1370 Montpellier Court, Gloucester Business Park, Gloucester, Gloucestershire, GL3 4AH, United Kingdom	United Kingdom	100
LivaNova USA Inc.	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100

	Registered Office	Country of Incorporation	% Consolidated Group Ownership
LIVN Irishco 2 UC	Deloitte, 6 Lapps Quay, Cork, T12 TA48, Ireland	Ireland	100
LIVN Irishco Unlimited Company	Deloitte, 6 Lapps Quay, Cork, T12 TA48, Ireland	Ireland	100
LIVN Luxco 2 sarl	15 Rue Edward Steichen L-2540 Luxembourg	Luxembourg	100
LIVN UK 2 Co Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100
LIVN UK 3 Co Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100
LIVN UK Holdco Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100
LIVN US 3, LLC	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100
LIVN US 5, LLC	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100
LIVN US LP	14401 West 65th Way, Arvada, CO 80004	U.S.	100
Sorin Group Czech Republic s.r.o	Na poriçi 1079/3a Nové Mesto Praha 110 00 Praha 1, Czech Republic	Czech Republic	100
Sorin Group Italia S.r.l.	Via Benigno Crespi, 17 — 20159 Milano, Italy	Italy	100
Sorin Group Rus LLC	Marshal Proshlyakov str. 30 office 304 123458 Moscow, Russia	Russia	100

All subsidiary undertakings are included in the consolidation. The proportion of the voting rights in the subsidiary undertakings held directly by the parent company do not differ from the proportion of Ordinary Shares held.

Operating performance of the main group companies:

Sorin Group Italia S.r.l.

(thousands of Euros)	For The Year Ended 31 December 2019
Net sales	308,132
Earnings before interest and taxes	(12,549)
Net loss	(14,340)

LivaNova Holding USA, Inc.

(thousands of USD)	For The Year Ended 31 December 2019
Net sales	–
Earnings before interest and taxes	(288,133)
Net loss	(288,649)

LivaNova Deutschland GmbH[1]

(thousands of Euros)	For The Year Ended 31 December 2019
Net sales	122,878
Earnings before interest and taxes	(2,511)
Net loss	(1,312)

(1) LivaNova Deutschland GmbH is a 100% consolidated LivaNova group company that is formally exempt for FS 2019 from GERMAN GAAP auditing and publishing.

LivaNova Canada Corp.

(thousands of Canadian Dollars)	For The Year Ended 31 December 2019
Net sales	74,114
Earnings before interest and taxes	7,978
Net profit	859

LivaNova USA, Inc.

(thousands of USD)	For The Year Ended 31 December 2019
Net sales	671,295
Earnings before interest and taxes	(36,025)
Net loss	(9,765)

Note 13. Financial Assets

Non-Current Financial Assets

(in thousands)	31 December 2019	31 December 2018
Investments in equity instruments in private-held companies	$ 26,805	$ 24,823
Corporate owned life insurance policies	4,476	2,633
Total non-current financial assets	**$ 31,281**	**$ 27,456**

The table below lists our non-current financial assets of investments in equity instruments in privately-held companies held at cost, which we believe it is an appropriate estimate of fair value unless more recent information is available sufficient to measure fair value, in the consolidated balance sheet (in thousands):

	Percent Ownership 31 December 2019	Security	Address	Fair Value 31 December 2019	Fair Value 31 December 2018
Respicardia Inc.[1]	19.5%	Series D Preferred Shares	12400 Whitewater Dr #150, Minnetonka, MN 55343	$ 17,706	$ 17,706
Ceribell, Inc.[2]	3.0%	Series B Preferred Shares	2483 Old Middlefield Way #120, Mountain View, CA 94043	3,000	3,000
ShiraTronics, Inc.[3]	14.5%	Series A Preferred Shares	9210 Wyoming Ave. N., Suite 275, Brooklyn Center, MN 55445	2,045	–
Rainbow Medical Ltd.[4]	1.6%	Ordinary Shares	85 Medinat Hayehudim St., Business Park, G Building, Herzeliya Pituach, Israel	1,099	1,119
MD Start II[5]	9.3%	Series A Shares	7-11 bd Haussmann, 75009 Paris, France	1,121	1,144
Highlife SAS[6]	7.0%	Series A Preferred Shares	168 rue de Grenelle, 75007 Paris, France	1,064	1,084
Noctrix Investment Fund	12.0%	Series A Preferred Shares	724 Brannan St., San Francisco, CA 94103	770	770
				$ 26,805	**$ 24,823**

(1) Respicardia Inc. ("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 $0.6 million as of 31 December 2019, and 31 December 2018, which is included in current financial assets on the consolidated balance sheet.

(2) On 7 September 2018, we acquired 1,007,319 shares of Series B Preferred Stock of Ceribell, Inc. ("Ceribell"). Ceribell is focused on utilizing electroencephalography to improve the diagnosis and treatment of patients at risk for seizures.

(3) ShiraTronics, Inc. ("ShiraTronics") is a privately held early-stage medical device company located in the U.S. and Ireland and is focused on developing neuromodulation technologies for the treatment of debilitating migraine headaches. We are required to invest up to a total of $5 million dependent upon ShiraTronics achieving certain milestones.

(4) Rainbow Medical Ltd. is an Israeli company that seeds and grows companies developing medical devices in a diverse range of medical fields.

(5) MD Start II is a private venture capital collaboration for the development of medical device technology in Europe.

(6) Highlife S.A.S. ("Highlife") is a privately held clinical-stage medical device company located in France and is focused on the development of a unique TMRV replacement system to treat patients with MR. At 31 December 2017, we accounted for Highlife under the equity method and the carrying value was $1.8 million. Due to an additional investment by a third party during the year ended 31 December 2018, our equity interest in Highlife decreased to 7.8% from 24.6%. We determined that we no longer had significant influence over Highlife and, as a result, we no longer accounted for Highlife under the equity method.

The table below lists our non-current equity investments in associates as at 31 December 2019:

	Percent Ownership 31 December 2019	Address
MD Start I K.G.	23.4%	7-11 bd Haussmann, 75009 Paris, France
MD Start S.A.	20.9%	7-11 bd Haussmann, 75009 Paris, France
Enopace Biomedical Ltd.	34.5%	15 Alon ha-Tavor Street, Caesarea, Haifa District, Israel
Cardiosolutions, Inc.	35.3%	375 West Street, West Bridgewater, MA 02379
La Bouscarre S.C.I.	50.0%	Route de Revel, 31450 Fourquevaux, France
MD Start III[(1)]	10.4%	7-11 bd Haussmann, 75009 Paris, France

(1) We are required to fund up to a total of approximately €5.0 million (approximately $5.6 million as of 31 December 2019) based on cash calls. There are no outstanding cash calls as at 31 December 2019.

Current Financial Assets:

(in thousands)	31 December 2019	31 December 2018
Financial receivables due from equity investments	$ 642	$ 597
Other receivables	2,594	117
Total current financial assets	**$ 3,236**	**$ 714**

Note 14. Inventories

Inventories consisted of the following (in thousands):

	31 December 2019	31 December 2018
Raw materials	$ 45,225	$ 40,387
Work-in-process	14,581	15,999
Finished goods	104,348	97,149
Total	**$ 164,154**	**$ 153,535**

Inventories are reported net of the provision for obsolescence which totalled $12.7 million and $11.6 million as at 31 December 2019 and 31 December 2018, respectively. The provision for obsolescence at 31 December 2019 reflects normal obsolescence and includes components that are phased out or expired.

Note 15. Trade Receivables and Other Receivables

Trade receivables, net, consisted of the following (in thousands):

	31 December 2019	31 December 2018
Trade receivables from third parties	$ 270,874	$ 267,733
Expected credit loss provision	(13,105)	(11,598)
Total	**$ 257,769**	**$ 256,135**

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.

Trade receivables are reported net of the expected credit loss provision, the changes in which are provided below (in thousands):

	31 December 2019	31 December 2018
Beginning of year	$ (11,598)	$ (9,418)
Additions to provision	(1,848)	(3,184)
Utilisation	169	(36)
Reclassifications	–	724
Currency translation gains	172	316
End of year	**$ (13,105)**	**$ (11,598)**

Below is a summary of other receivables (in thousands):

	31 December 2019	31 December 2018
Prepaid assets	$ 18,678	$ 21,495
Deposits and advances to suppliers	5,147	3,776
Receivable from MicroPort Scientific Corporation	872	1,749
Guarantee deposits	556	796
Earthquake grant receivable	–	805
Total	**$ 25,253**	**$ 28,621**

Note 16. Derivative Financial Instruments

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 exchange 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 on the consolidated balance sheet. 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, changes in the fair value of the derivative will be recorded in accumulated other comprehensive income ("AOCI") until the hedged item is recognised in earnings upon settlement/termination. FX derivative gains and losses in AOCI are reclassified to our 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 on our consolidated statement of (loss) income. We evaluate hedge effectiveness at inception. Cash flows from derivative contracts are reported as operating activities on our consolidated statement of cash flows

Freestanding FX Derivative Contracts

The gross notional amount of FX derivative contracts not designated as hedging instruments, outstanding at 31 December 2019 and 31 December 2018, was $338.0 million and $320.2 million, respectively. These derivative contracts are designed to offset the FX effects in earnings of various intercompany loans, our 2014 EIB loan, the Euro-denominated borrowings under the 2019 Debt Facility and trade receivables. We recorded net gains (losses) for these freestanding derivatives of $3.1 million, $(11.2) million for the years ended 31December 2019 and 2018, respectively. These gains and (losses) are included in foreign exchange and other gains (losses) on our consolidated statement of (loss) income.

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 U.S. dollar forecasts of revenues and costs denominated in British Pound, Japanese Yen, Canadian Dollars and the Euro. 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 or component of the FX derivative contracts excluded in the measurement of hedge effectiveness during the years ended 31 December 2019 and 31 December 2018.

Interest Rate Risk

The 2014 EIB loan agreement matures in June 2021. The variable interest rate for the 2014 EIB loan is reset by the lender each quarter based on the Euribor. To minimise the impact of changes in interest rates we entered into interest rate swap agreement programs to swap the 2014 EIB loan's 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 31 December 2019 and 31 December 2018.

The notional amounts of open derivative contracts designated as cash flow hedges as of 31 December 2019 and 31 December 2018 were as follows (in thousands):

Description of Derivative Contract	31 December 2019	31 December 2018
FX derivative contracts to be exchanged for British Pounds	$ 10,128	$ 9,629
FX derivative contracts to be exchanged for Japanese Yen	25,342	23,985
FX derivative contracts to be exchanged for Canadian Dollars	–	7,637
FX derivative contracts to be exchanged for Euros	48,838	29,768
Interest rate swap contracts	22,442	38,115
	$ 106,750	**$ 109,134**

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

Description of Derivative Contract	31 December 2019	Amount Expected to be Reclassified to Earnings in the Next 12 Months
FX derivative contracts	$ 600	$ 600
Interest rate swap contracts	(86)	(57)
Total	**$ 514**	**$ 543**

Presentation in Financial Statements

Pre-tax gains (losses) for derivative contracts designated as cash flow hedges recognised in other comprehensive income (loss) and the amount reclassified to earnings from AOCI were as follows (in thousands):

		Year Ended 31 December 2019	
Description of Derivative Contract	Location in Earnings of Reclassified Gain or Loss	Gains Recognised in OCI	Gains (Losses) Reclassified from AOCI to Earnings:
FX derivative contracts	Foreign exchange and other (losses) gains	$ 2,757	$ 3,003
FX derivative contracts	SG&A	–	(2,071)
Interest rate swap contracts	Interest expense	–	(92)
Total		**$ 2,757**	**$ 840**

		Year Ended 31 December 2018	
Description of Derivative Contract	Location in Earnings of Reclassified Gain or Loss	Gains Recognised in OCI	Gains Reclassified from AOCI to Earnings:
FX derivative contracts	Foreign exchange and other (losses) gains	$ 44	$ 2,697
FX derivative contracts	SG&A	–	(2,554)
Interest rate swap contracts	Interest expense	–	(66)
Total		**$ 44**	**$ 77**

We offset fair value amounts associated with our derivative instruments on our consolidated balance sheet that are executed with the same counterparty under master netting arrangements. Our netting arrangements include a right to set off or net together purchases and sales of similar products in the settlement process.

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

31 December 2019	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			Current financial derivative liabilities	$ 313
Interest rate swap contracts			Non-current financial derivative liabilities	61
FX derivative contracts	Current financial derivative assets	$ 148	Current financial derivative liabilities	169
FX derivative contracts	Current financial derivative liabilities	387		
Total derivatives designated as hedging instruments		**535**		**543**
Derivatives Not Designated as Hedging Instruments				
FX derivative contracts	Current financial derivative liabilities	26	Current financial derivative liabilities	3,104
FX derivative contracts			Current financial derivative assets	33
Total derivatives not designated as hedging instruments		26		3,137
Total derivatives		**$ 561**		**$ 3,680**

(1) For the classification of input used to evaluate the fair value of our derivatives, refer to "Note 5. Fair Value Measurements."

31 December 2018	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			Current financial derivative liabilities	$ 536
Interest rate swap contracts			Non-current financial derivative liabilities	329
FX derivative contracts			Current financial derivative liabilities	1,354
Total derivatives designated as hedging instruments				**2,219**
Derivatives Not Designated as Hedging Instruments				
FX derivative contracts	Current financial derivative assets	$ 236	Current financial derivative liabilities	3,173
Total derivatives not designated as hedging instruments		236		3,173
Total derivatives		**$ 236**		**$ 5,392**

(1) For the classification of inputs used to evaluate the fair value of our derivatives, refer to "Note 5. Fair Value Measurements."

Note 17. Shareholders' Equity

LivaNova is incorporated in England and Wales as a public company limited by shares. The principal legislation under which LivaNova operates is the Companies Act 2006, and regulations made thereunder. LivaNova Ordinary Shares were registered under the U.S. Securities Act, pursuant to the Registration Statement on Form S-4 (File No. 333-203510), as amended, filed with the SEC by LivaNova and declared effective on 19 August 2015. LivaNova's Ordinary Shares are listed on Nasdaq under the ticker symbol "LIVN."

The Company's authorised share capital is as following:

(in number of shares)	31 December 2019	31 December 2018
Authorised share capital, Ordinary Shares of £1 each, unlimited shares authorised		
Issued[(1)]	49,411,016	49,323,418
Outstanding	48,443,830	48,205,783

(1) Allotted, fully paid and issued.

Preferred shares. LivaNova may issue preferred shares by special resolution or by determination by the Board of Directors of LivaNova.

Treasury shares. We issued 1.4 million shares to our Employee Benefit Trust ("EBT") during the year ended 31 December 2018. Shares held by the EBT are issued to employees and directors at exercise of stock-based compensation grants. The balance of shares in the EBT are reported as treasury shares. We did not issue any additional shares to our EBT during the year ended 31 December 2019.

Share repurchase plans. On 1 August 2016, the Board of Directors of LivaNova approved the authorization of a share repurchase plan (the "Share Repurchase Program") pursuant to an authority granted by shareholders at the 2016 annual general meeting held on 15 June 2016. The Share Repurchase Program was structured to enable us to buy back up to $150.0 million of our shares on NASDAQ between 1 September 2016 through 31 December 2016. On 15 November 2016, the Board of Directors approved an amendment (the "Amended Share Repurchase Program") to the Share Repurchase Program. The Amended Share Repurchase Program authorised the Company to repurchase up to $150.0 million of our shares between 1 September 2016 and 31 December 2018. As of 31 December 2018, we repurchased 1,493,672 shares under this plan at a cost of $100 million for an average price of $66.95. All repurchased shares were canceled and are no longer considered issued or outstanding. No shares may be repurchased under the Share Repurchase Program or the Amended Share Repurchase Program after 31 December 2018.

Group reconstruction reserve. The 'Group reconstruction reserve' represents the excess of value attributed to shares and share appreciation rights issued during the acquisition of Sorin S.p.A on 19 October 2015 over the nominal value of those shares and share rights.

Comprehensive Income

The table below presents the change in each component of accumulated other comprehensive loss, net of tax and the reclassifications out of accumulated other comprehensive loss into retained deficit.

Taxes were not provided for foreign currency translation adjustments for the years ended 31 December 2019 and 2018 as translation adjustment related to earnings that are intended to be reinvested in the countries where earned.

(in thousands)	Change in Unrealised Gain (Loss) on Investments	Change in Unrealised Gain (Loss) on Derivatives	Foreign Currency Translation Adjustments	Revaluation of Net Liability (Asset) for Defined Benefits	Total
Beginning Balance – 31 December 2017	$ 5,490	$ (919)	$ 40,489	$ (1,546)	$ 43,514
Opening balance adjustment upon adoption of IFRS 9	(5,490)	–	–	–	(5,490)
Other comprehensive income (loss) before reclassifications, before tax	–	44	(64,118)	662	(63,412)
Tax expense	–	(11)	–	(190)	(201)
Other comprehensive (loss) income before reclassifications, net of tax	(5,490)	33	(64,118)	472	(69,103)
Reclassification of loss from accumulated other comprehensive income, before tax	–	(77)	–	–	(77)
Tax effect	–	19	–	–	19
Reclassification of loss from accumulated other comprehensive income, after tax	–	(58)	–	–	(58)
Net other comprehensive (loss) income, net of tax	(5,490)	(25)	(64,118)	472	(69,161)
Ending Balance – 31 December 2018	–	(944)	(23,629)	(1,074)	(25,647)
Other comprehensive income (loss) before reclassifications, before tax	–	2,757	3,608	(1,337)	5,028
Tax (expense) benefit	–	(662)	–	328	(334)
Other comprehensive income (loss) before reclassifications, net of tax	–	2,095	3,608	(1,009)	4,694
Reclassification of loss from accumulated other comprehensive income, before tax	–	(840)	–	–	(840)
Tax effect	–	202	–	–	202
Reclassification of loss from accumulated other comprehensive income, after tax	–	(638)	–	–	(638)
Net other comprehensive income (loss), net of tax	–	1,457	3,608	(1,009)	4,056
Ending Balance – 31 December 2019	$ –	$ 513	$ (20,021)	$ (2,083)	$ (21,591)

Note 18. Financial Liabilities

The outstanding principal amount of our unsecured long-term debt at 31 December 2019 and at 31 December 2018 consisted of the following (in thousands, except interest rates):

	31 December 2019	31 December 2018	Maturity	Effective Interest Rate
2019 Debt Facility[1]	$ 184,275	$ –	March 2022	1.40% – 3.56%
2017 European Investment Bank[2]	103,570	103,570	June 2026	3.31% – 3.37%
2014 European Investment Bank[3]	28,053	47,606	June 2021	1.01%
Mediocredito Italiano	6,222	7,623	December 2023	0.50% – 2.93%
Bank of America Merrill Lynch Banco Múltiplo S.A.	8,422	–	July 2021	8.08%
Bank of America, U.S.	2,004	–	January 2021	3.76%
Banca del Mezzogiorno	–	2,718	–	–
Other	669	1,324	–	–
Total long-term facilities	333,215	162,841		
Less current portion of long-term debt	73,112	23,303		
Total long-term debt	**$ 260,103**	**$ 139,538**		

(1) The facility agreement with Bank of America Merrill Lynch International DAC, Barclays Bank PLC, BNP Paribas (London Branch) and Intesa Sanpaolo S.P.A. provides a multi-currency term loan facility in an aggregate amount of $350 million and terminates on 26 March 2022 (the "2019 Debt Facility"). Principal repayments of 20% of the outstanding borrowings under the 2019 Debt Facility are due in September 2020, March 2021 and September 2021, with the remainder of the outstanding borrowings due in March 2022.

(2) The 2017 European Investment Bank ("2017 EIB") loan was obtained to support certain product development projects. The interest rate for the 2017 EIB loan is reset by the lender each quarter based on LIBOR. Interest payments are paid quarterly, and principal payments are paid semi-annually.

(3) The 2014 European Investment Bank ("2014 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.

Cash movements associated with the outstanding principal amounts of our long-term debt for the year ended 31 December 2019 included the following (in thousands):

	Beginning of Fiscal Year 2019	Borrowing	Scheduled Principal Reductions	Amortisation of Prepaid Loan Fees	FX – Translation and Other	End of Fiscal Year 2019
2019 Debt Facility	$ –	$ 185,738	$ –	$ (1,156)	$ (307)	$ 184,275
2017 European Investment Bank	103,570	–	–	–	–	103,570
2014 European Investment Bank	47,606	–	(18,678)	14	(889)	28,053
Mediocredito Italiano	7,623	–	(1,327)	68	(142)	6,222
Bank of America Merrill Lynch Banco Múltiplo S.A.	–	8,422	–	–	–	8,422
Bank of America, U.S.	–	3,000	(1,029)	–	33	2,004
Banca del Mezzogiorno	2,718	–	(2,667)	–	(51)	–
Other	1,324	–	(509)	–	(146)	669
Totals	**$ 162,841**	**$ 197,160**	**$ (24,210)**	**$ (1,074)**	**$ (1,502)**	**$ 333,215**

In connection with the CRM sale, on 1 May 2018, the borrowing capacity of the 2017 EIB loan decreased from €100.0 million (approximately $114.3 million as of 31 December 2018) to €90.0 million (approximately $103 million as of 31 December 2018).

On 26 March 2019, we entered into the 2019 Debt Facility. Borrowings under the facility bear interest at a rate of LIBOR plus 1.6% for borrowings in U.S. dollars and EURIBOR plus 1.4% for Euro-denominated borrowings. Proceeds from the facility are used for litigation settlements associated with our 3T device and general corporate and working capital purposes, excluding acquisitions, dividends and share buybacks. Available borrowings under the 2019 Debt Facility commenced on 26 March 2019 and extend through 26 March 2020. The 2019 Debt Facility contains financial covenants that require LivaNova to maintain a maximum consolidated net debt to EBITDA ratio, a minimum interest coverage ratio and a maximum consolidated net debt to net worth ratio. LivaNova must also maintain a minimum amount of consolidated net worth. The 2019 Debt Facility also contains customary representations and warranties, covenants, and events of default. At 31 December 2019, LivaNova was in compliance with all covenants.

Revolving Credit

The outstanding principal amount of our short-term unsecured revolving credit agreements and other agreements with various banks was $4.2 million and $5.5 million at 31 December 2019 and 31 December 2018, respectively, with interest rates ranging from 2.72% to 8.29% and loan terms ranging from 10 days to 220 days.

On 10 April 2018, we entered into an amendment and restatement agreement with Barclays Bank PLC amending the revolving facility agreement originally dated 21 October 2016 (the "Amendment"). The Amendment increased our borrowing capacity under the facility from $40.0 million to $70.0 million and extended the term of the facility one year. The facility terminated on 20 October 2019.

On 25 July 2019, we entered into a €40.0 million (approximately $44.9 million as of 31 December 2019) credit facility agreement with Banca Nazionale del Lavoro SpA ("2019 Revolving Credit Facility") for working capital needs. The 2019 Revolving Credit Facility has a term of 2 years and borrowings bear interest at Euribor plus 0.8%. There were no borrowings under the 2019 Revolving Credit Facility during 2019.

Bridge Facility Agreement

In connection with the April 2018 acquisition of TandemLife, we entered into a bridge facility agreement (the "Bridge Facility Agreement") providing a term loan facility with the aggregate principal amount of $190.0 million. On 3 April 2018, we borrowed $190.0 million under the Bridge Facility Agreement to facilitate the initial payment for our acquisition of TandemLife. We used the proceeds from the sale of the CRM business franchise to repay the borrowings under the Bridge Facility Agreement in full during 2018.

Note 19. Leases

We have leases primarily for (i) real estate, including office space and manufacturing, warehouse and research and development facilities and (ii) vehicles. Our leases have remaining lease terms up to 12 years, some of which include options to extend the leases, and some of which include options to terminate the leases at our sole discretion.

Reconciliation of Lease Commitment and Lease Liability

The following table presents the reconciliation of total operating lease commitments disclosed in the consolidated financial statements for the year ended 31 December 2018 and the lease liabilities recognised at 1 January 2019 on adoption of IFRS 16 (in thousands).

Operating lease commitments disclosed at 31 December 2018	$ 68,958
Less: Short-term and low-value leases recognised on a straight-line basis as expense	(5,016)
Undiscounted lease liability	63,942
Discounting (weighted average incremental borrowing rate of 2.3%)	(2,192)
Lease liabilities recognised on adoption of IFRS 16 at 1 January 2019	**$ 61,750**

Right-of-Use Assets and Lease Liabilities

The movement in the right-of-use assets and lease liabilities since adoption by class of assets is as follows (in thousands):

	Real Estate	Vehicles	Others	Right-of-Use Assets	Lease Liabilities
Balance as of 1 January 2019	$ 57,388	$ 3,598	$ 420	$ 61,406	$ 61,750
Additions	4,322	4,390	–	8,712	8,712
Depreciation expense[(1)]	(9,959)	(2,880)	(215)	(13,054)	–
Impairments[(2)]	(853)	–	–	(853)	–
Disposals, modifications and other	(265)	(65)	(254)	(584)	(282)
Interest expense	–	–	–	–	1,315
Lease payments	–	–	–	–	(13,522)
Currency translation adjustments	(378)	(50)	(5)	(433)	(439)
Balance as of 31 December 2019	**$ 50,255**	**$ 4,993**	**$ (54)**	**$ 55,194**	**$ 57,534**

(1) Depreciation expense is included in the consolidated statement of (loss) income in cost of sales or other operating expenses.

(2) In November 2019, we announced that we would be ending our Caisson TMVR program. The announcement triggered an evaluation of finite and indefinite lived assets for impairment. As a result, we recognised an impairment of the related right-of-use asset.

Contractual maturities of our lease liabilities as of 31 December 2019 are as follows (in thousands):

2020	$ 12,399
2021	10,402
2022	9,224
2023	7,524
2024	5,975
Thereafter	16,907
Total lease payments	62,431
Less: Amount representing finance charges	(4,897)
Net present value of lease liabilities	**$ 57,534**

Lease Payments not Recognised as a Liability

We have elected not to recognise a lease liability for short- term leases (leases with an expected term of 12 months or less) or for leases of low value assets. Payments made under such leases are expensed on a straight-line basis. In addition, certain variable lease payments (i.e., variable maintenance and utility expenses) are not permitted to be recognised as lease liabilities and are expensed as incurred. Expenses recognised during 2019 relating to payments not included in the measurement of lease liabilities is as follows (in thousands):

Short-term leases	$ 788
Lease of low value	558
Variable lease payments	873
	$ 2,219

At 31 December 2019, we were committed to future lease payments of approximately $3 million relating to short-term leases and leases of low value assets that are not reflected in the measurement of lease liabilities. These payments will generally be made ratably over the next 3 to 5 years.

Furthermore, lessor lease revenue constituted less than 0.5% of total net sales for the year ended 31 December 2019.

Note 20. Other Non-Current Liabilities

(in thousands)	31 December 2019	31 December 2018
Amounts due to employees	$ 4,475	$ 6,502
Other	4,737	2,965
Unfavourable operating leases	–	213
Total	**$ 9,212**	**$ 9,680**

Note 21. Contingent Consideration, Litigation Provision Liability and Other Provisions

The provisions in the table below are expected to result in payments within the next year.

Current Provisions

(in thousands)	31 December 2019	31 December 2018
Litigation provision liability	$ 146,026	$ 161,852
Contingent consideration	22,953	18,530
Product remediation	3,251	13,945
Restructuring reserve	2,542	9,393
Contractual warranty reserve	1,004	892
Other	8,070	8,778
Total	**$ 183,846**	**$ 213,390**

Non-Current Provisions

(in thousands)	31 December 2019	31 December 2018
Litigation provision liability	$ 24,378	$ 132,210
Contingent consideration	114,396	161,381
Liability for uncertain tax provisions (inclusive of penalties and interest)	10,332	17,878
Product remediation	–	800
Other	252	449
Total	**$ 149,358**	**$ 312,718**

Product Remediation and Litigation Provision Liability. On 29 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 13 October 2016, the CDC and FDA separately released safety notifications regarding 3T Heater-Cooler devices in response to which we issued a Field Safety Notice Update for U.S. users of our 3T Heater-Cooler devices to proactively and

voluntarily contact facilities to facilitate implementation of the CDC and FDA recommendations.

At 31 December 2016, we recognised 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 behaviour, 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 canister and internal sealing upgrade on a customer-owned device. We are currently implementing the vacuum canister and internal sealing upgrade program in as many countries as possible until all devices are upgraded. In October 2018, after review of information provided by us, the FDA concluded that we could commence the vacuum canister and internal sealing upgrade program in the U.S., and on 25 February 2020, LivaNova received clearance for K191402, a 510(k) for the 3T devices that addressed issues contained in the 2015 Warning Letter along with design changes that further mitigate the potential risk of aerosolization. Concurrent with this clearance, (1) 3T devices manufactured in accordance with K191402 will not be subjected to the import alert and (2) LivaNova initiated a correction to distribute the updated Operating Instructions cleared under K191402.

As a second part of the remediation plan, we continue to offer a no-charge deep disinfection service (deep cleaning service) for 3T device users as we receive the required regulatory approvals. The deep disinfection service was rolled out in Europe in the second half of 2015, and in April 2018, the FDA agreed to allow us to move forward with the deep cleaning service in the U.S., thereby adding to the growing list of countries around the world in which we offer this service. 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, which began in the U.S., was rolled out in Europe shortly thereafter, and is being made available progressively on a global basis, prioritising and allocating devices to 3T device users based on pre-established criteria.

We recognised product remediation expenses during the years ended 31 December 2019 and 2018 of $15.8 million and $10.7 million, respectively. Product remediation expenses include internal labour costs, costs to remediate certain inspectional observations made by the FDA at our Munich facility and costs associated with the incorporation of the modification of the 3T device design into the next generation 3T device. These costs and related legal costs are expensed as incurred and are not included within the product remediation liability presented above. During the fourth quarter of 2018, we recognised a $294.1 million liability related to the litigation involving the 3T device. As of 31 December 2019, the liability was $170.4 million. Our related legal costs are expensed as incurred. For further information, please refer to "Note 26. Commitments and Contingencies."

Restructuring reserve. Refer to "Note 9. Restructuring" for more details.

The changes in the carrying value of current provisions during the year are indicated below (in thousands):

	Litigation Provision Liability[1]	Contingent Consideration[2]	Product Remediation	Restructuring Reserve	Contractual Warranty Reserve	Other Reserves	Total
31 December 2017	$ –	$ –	$ 16,811	$ 3,560	$ 1,476	$ 6,863	$ 28,710
Opening adjustment for discontinued operations	–	–	–	(494)	–	289	(205)
Change in fair value	–	690	–	–	–	–	690
Additions to provision	161,829	–	–	11,949	–	2,511	176,289
Utilisation	–	(2,465)	(12,412)	(5,962)	(25)	(695)	(21,559)
Release of provisions	–	–	–	–	(535)	–	(535)
Reclassifications from non-current	–	20,283	9,679	392	–	–	30,354
Currency translation gains (losses)	23	22	(133)	(52)	(24)	(190)	(354)
31 December 2018	161,852	18,530	13,945	9,393	892	8,778	213,390
Acquisitions[3]	–	4,259	–	–	–	–	4,259
Change in fair value	–	(5,149)	–	–	–	–	(5,149)
Additions to provision	33,233	–	3,663	2,096	131	857	39,980
Utilisation	(156,928)	(20,204)	(14,909)	(6,699)	(6)	(1,329)	(200,075)
Release of provisions	–	–	–	(2,143)	–	(79)	(2,222)
Reclassifications from non-current	107,832	25,611	785	–	–	–	134,228
Currency translation gains (losses)	37	(94)	(233)	(105)	(13)	(157)	(565)
31 December 2019	$ 146,026	$ 22,953	$ 3,251	$ 2,542	$ 1,004	$ 8,070	$ 183,846

(1) For additional information refer to "Note 26. Commitments and Contingencies."

(2) For utilization during 2019, in July 2019, we achieved a regulatory milestone upon receiving FDA approval of the LifeSPARC system, triggering the payment of $19.0 million during the third quarter of 2019 to settle the related contingent consideration liability in connection with our TandemLife acquisition.

(3) For additional information refer to "Note 7. Business Combinations."

The changes in the carrying value of non-current provisions during the year are indicated below (in thousands):

	Litigation Provision Liability[1]	Contingent Consideration	Liability for Uncertain Tax Provisions	Product Remediation	Restructuring Reserve	Other Reserves	Total
31 December 2017	$ –	$ 33,973	$ 18,306	$ 10,735	$ 392	$ –	$ 63,406
Acquisition of ImThera[2]	–	112,744	–	–	–	–	112,744
Acquisition of TandemLife[2]	–	40,190	–	–	–	–	40,190
Change in fair value[3]	–	(5,001)	–	–	–	–	(5,001)
Additions to provision	132,192	–	4,793	–	–	462	137,447
Utilisation	–	(196)	(8,053)	–	–	–	(8,249)
Reclassifications (to) from current	–	(20,283)	3,478	(9,679)	(392)	–	(26,876)
Reclassification to tax payable	–	–	–	–	–	–	–
Currency translation gains (losses)	18	(46)	(646)	(256)	–	(13)	(943)
31 December 2018	132,210	161,381	17,878	800	–	449	312,718
Acquisitions[2]	–	2,925	–	–	–	–	2,925
Change in fair value[3]	–	(24,257)	–	–	–	–	(24,257)
Additions to provision	–	–	434	–	–	–	434
Utilisation	–	–	(2,104)	–	–	–	(2,104)
Release of provisions	–	–	(5,664)	–	–	(187)	(5,851)
Reclassifications to current	(107,832)	(25,611)	–	(785)	–	–	(134,228)
Reclassification to tax payable	–	–	–	–	–	–	–
Currency translation losses	–	(42)	(212)	(15)	–	(10)	(279)
31 December 2019	$ 24,378	$ 114,396	$ 10,332	$ –	$ –	$ 252	$ 149,358

(1) For additional information refer to "Note 26. Commitments and Contingencies."

(2) For additional information refer to "Note 7. Business Combinations."

(3) The change in fair value during 2018 includes a net decrease of $2.8 million due to a delay in the timing of anticipated regulatory approval for ImThera. The change in fair value during 2019 reflects a delay in the timing of anticipated regulatory approval and commercialization for ImThera. While the probability of payment remains unchanged from the time of acquisition, the projected years of payment for the regulatory milestone-based payment and the sales-based earnout have been updated to occur between 2023-2024 and 2024-2028, respectively. Additionally, in November 2019, we announced that we would be ending our Caisson TMVR program effective 31 December 2019. As such, we released the contingent consideration provision associated with the acquisition of Caisson. At 31 December 2018, the fair value of the Caisson contingent consideration provision was $27.9 million.

Note 22. Other Payables

(in thousands)	31 December 2019	31 December 2018
Accrued expenses – employee-related charges	$ 42,864	$ 54,059
Other accrued expenses	35,357	23,294
Amounts due to employees	21,371	23,756
CRM purchase price adjustments payable to MicroPort Scientific Corporation	14,891	14,891
Other current liabilities	10,837	16,877
Contract liabilities	6,728	3,304
Other amounts due to health and social security institution	6,185	4,736
Other amounts payable to MicroPort Scientific Corporation	1,340	9,319
Current advances from customers	854	1,553
Total	**$ 140,427**	**$ 151,789**

Note 23. Share-Based Incentive Plans

Share-Based Incentive Plans

On 16 October 2015, we approved the adoption of the Company's 2015 Incentive Award Plan, which was previously approved by the Board of Directors of the Company on 14 September 2015 subject to such shareholder approval. The Plan was adopted in order to facilitate the grant of cash and equity incentives to non-employee directors, employees (including our named executive officers) and consultants of the Company and certain of our affiliates and to enable the Company and certain of our affiliates to obtain and retain services of these individuals. The Plan became effective as of 19 October 2015. Incentive awards may be granted under the 2015 Plan in the form of share options, share appreciation rights, restricted share, restricted share units, other share and cash-based awards and dividend equivalents. As of 31 December 2019 and 2018, there were approximately 4,904,000 and 5,380,000 shares available for future grants under the 2015 Plan, respectively.

On 1 January 2019, we initiated the LivaNova Global Employee Share Purchase Plan ("ESPP"). Compensation expense related to the ESPP for the year ended 31 December 2019 was $1.3 million.

Share-Based Compensation

Amounts of share-based compensation recognised in the consolidated statement of (loss) income, by expense category are as follows (in thousands):

	Year Ended 31 December	
	2019	2018
Cost of sales	$ 1,539	$ 1,312
Selling, general and administrative	29,242	24,000
Research and development	6,438	5,581
Share-based compensation from continuing operations	37,219	30,893
Stock-based compensation from discontinued operations	–	1,960
Total stock-based compensation	**$ 37,219**	**$ 32,853**

Amounts of share-based compensation expense recognised in the consolidated statement of (loss) income, by type of arrangement are as follows (in thousands):

	Year Ended 31 December	
	2019	2018
Service-based stock appreciation rights	$ 12,309	$ 10,637
Service-based restricted stock units	16,819	14,197
Market performance-based restricted stock units	2,900	2,357
Operating performance-based restricted stock units	3,918	3,702
Employee stock purchase plan	1,273	–
Total share-based compensation expense from continuing operations	**$ 37,219**	**$ 30,893**

The expense for the years ended 31 December 2019 and 31 December 2018 related to awards that were accounted for as equity settled.

Share Appreciation Rights and Share Options

We use the Black-Scholes option pricing methodology to calculate the grant date fair market value of SARs. The following table lists the assumptions we utilized as inputs to the Black-Scholes model:

	Year Ended 31 December	
	2019	2018
Weighted average share price	$96.60	$91.06
Exercise price	$71.93 – $97.25	$88.38 – $124.79
Dividend yield[1]	–	–
Risk-free interest rate – based on grant date[2]	1.4% – 2.2%	2.5% – 2.9%
Expected option term – in years per group of employees/consultants[3]	5.0 – 5.1	5.0 – 5.1
Expected volatility at grant date[4]	32.2% – 35.7%	29.2% – 29.9%

(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) Refer to "Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies — Share-based Compensation" for further information regarding expected volatility.

The following tables detail the activity for service-based SARs and stock option awards:

	Year Ended 31 December			
	2019		2018	
SARs and Stock Options	Number of Optioned Shares	Wtd. Avg. Exercise Price	Number of Optioned Shares	Wtd. Avg. Exercise Price
Outstanding – at beginning of year	1,941,587	$ 67.33	2,025,122	$ 56.82
Granted	591,845	$ 96.60	648,184	$ 91.06
Exercised	(121,534)	$ 61.50	(599,601)	$ 57.45
Forfeited	(171,282)	$ 83.44	(118,831)	$ 68.91
Expired	(25,560)	$ 72.60	(13,287)	$ 54.01
Outstanding – end of year	2,215,056	$ 74.41	1,941,587	$ 67.33
Fully vested and exercisable – end of year	951,797	$ 61.45	708,485	$ 57.78
Fully vested and expected to vest – end of year[1]	2,173,525	$ 74.08	1,907,577	$ 67.14

(1) Includes the impact of expected future forfeitures.

The weighted average remaining contractual life for the share options and SARs outstanding at 31 December 2019 and 31 December 2018 is 7.02 years and 7.20 years, respectively.

The aggregate intrinsic value of the options and SARs outstanding at 31 December 2019 and 31 December 2018 is $22.2 million and $48.3 million, respectively. The aggregate intrinsic value of options and SARs is based on the difference between the fair market value of the underlying share at the end of the year using the market closing share price, and exercise price for in-the-money awards.

The range of exercise prices for stock options and SARs outstanding year end are categorized in exercise price ranges as follows:

Outstanding Options	31 December 2019	31 December 2018
$10 – 30	13,496	19,060
$31 – 50	164,855	166,829
$51 – 70	952,150	1,137,884
$71 – 90	474,810	533,252
$91 – 110	600,666	70,254
$111 – 130	9,079	14,308
Total	**2,215,056**	**1,941,587**

	Year Ended 31 December	
	2019	2018
Weighted average grant date fair value of SARs granted during the year (per share)	$ 31.22	$ 28.13
Aggregate intrinsic value of SARs and stock options exercised during the year (in thousands)	$ 2,064	$ 27,281

Restricted Share and Restricted Share Units Awards

The following tables detail the activity for service-based RSU awards:

	Year Ended 31 December			
	2019		2018	
	Number of Shares	Wtd. Avg. Grant Date Fair Value	Number of Shares	Wtd. Avg. Grant Date Fair Value
Non-vested shares at beginning of year	450,297	$ 78.70	380,108	$ 57.07
Granted	294,460	$ 92.54	257,004	$ 95.63
Vested	(147,969)	$ 74.53	(125,140)	$ 59.69
Forfeited	(72,955)	$ 92.62	(61,675)	$ 65.29
Non-vested shares at end of year	**523,833**	**$ 84.98**	**450,297**	**$ 78.70**

	Year Ended 31 December	
	2019	2018
Weighted average grant date fair value of service-based RSUs issued during the year (per share)	$ 92.54	$ 95.63
Aggregate fair value of RSUs that vested during the year (in thousands)	$ 12,710	$ 11,505

The following tables detail the activity for performance-based and market-based RSU awards:

	Year Ended 31 December			
	2019		2018	
	Number of Shares	Wtd. Avg. Grant Date Fair Value	Number of Shares	Wtd. Avg. Grant Date Fair Value
Non-vested shares at beginning of year	295,364	$ 56.48	341,387	$ 41.90
Granted	88,453	$ 98.50	86,409	$ 95.62
Vested	(69,646)	$ 41.52	(104,887)	$ 43.89
Forfeited	(28,502)	$ 75.97	(27,545)	$ 60.20
Non-vested shares at end of year	**285,669**	**$ 71.02**	**295,364**	**$ 56.48**

	Year Ended 31 December	
	2019	2018
Weighted average grant date fair value of performance and market-based restricted share units granted during the year (per share)	$ 98.50	$ 95.62
Aggregate fair value of performance and market-based restricted share units that vested during the year (in thousands)	$ 6,697	$ 9,409

Note 24. Employee Retirement Plans

We sponsor 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.

As at 31 December 2019 and 2018 the net underfunded status of our U.S. and non-U.S. defined benefit pension plans was $18.3 million and $19.5 million, respectively.

Risks Related to Defined-benefit Plans

The defined benefit plans expose the Group to various demographic and economic risks such as longevity risk, investment risks, currency and interest rate risk and in some cases inflation risk. The latter plays a role in the assumed wage increase and in some smaller plans where indexation is mandatory. Pension fund Trustees are responsible for and have full discretion over the investment strategy of the plan assets. In general Trustees manage pension fund risks by diversifying the investments of plan assets and by (partially) matching interest rate risk of liabilities.

The Company has an active de-risking strategy in which it constantly looks for opportunities to reduce the risks associated with its defined benefit plans. The plans are governed by Trustees who have a legal obligation to evenly balance the interests of all stakeholders and operate under the local regulatory framework.

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

	Year Ended 31 December			
	2019		2018	
	U.S. Pension Benefits	Non-U.S. Pension Benefits	U.S. Pension Benefits	Non-U.S. Pension Benefits
Accumulated benefit obligation at end of year	$ 11,232	$ 17,744	$ 10,591	$ 18,676
Change in projected benefit obligation				
Projected benefit obligation at beginning of year	$ 10,591	$ 18,975	$ 11,001	$ 21,548
Current service cost	–	478	–	478
Interest cost	382	232	336	289
Plan settlements	(366)	–	(340)	–
Actuarial loss (gain)	871	1,071	8	(818)
Benefits paid	(246)	(2,380)	(414)	(1,631)
Foreign currency exchange rate changes and other	–	(289)	–	(891)
Projected benefit obligation at end of year	$ 11,232	$ 18,087	$ 10,591	$ 18,975
Change in plan assets				
Fair value of plan assets at beginning of year	$ 6,767	$ 3,341	$ 6,879	$ 3,075
Actual return on plan assets	628	(34)	(405)	51
Employer contributions	546	383	1,047	361
Plan settlements	(366)	–	(340)	–
Benefits paid	(1)	(332)	(414)	(156)
Foreign currency exchange rate changes	–	65	–	10
Fair value of plan assets at end of year	7,574	3,423	6,767	3,341
Funded status at end of year				
Fair value of plan assets	7,574	3,423	6,767	3,341
Benefit obligations	11,232	18,087	10,591	18,975
Underfunded status of the plans[1]	3,658	14,664	3,824	15,634
Recognised liability	3,658	14,664	3,824	15,634
Amounts recognised on the consolidated balance sheet consist of:				
Non-current[2]	3,658	14,664	3,824	15,634
Recognised liability	$ 3,658	$ 14,664	$ 3,824	$ 15,634

(1) In certain non-U.S. countries, fully funding pension plans is not a common practice. Consequently, certain pension plans have been partially funded.
(2) These amounts are included within provision for employee severance indemnities and other employee benefit provisions on the consolidated balance sheet as well as social security taxes payable associated with our share-based incentive plans.

Major actuarial assumptions used in determining the benefit obligations and net periodic benefit (income) cost for our significant benefit plans are presented in the following table as weighted averages:

	Year Ended 31 December			
	2019		2018	
	U.S. Pension Benefits	Non-U.S. Pension Benefits	U.S. Pension Benefits	Non-U.S. Pension Benefits
Actuarial assumptions used to determine benefit obligation:				
Discount rate	2.88%	0.20% – 0.71%	3.97%	0.20% – 1.55%
Rate of compensation increase	N/A	2.50% – 3.00%	N/A	2.50% – 3.00%
Actuarial assumptions used to determine net periodic benefit cost:				
Discount rate	3.97%	0.20% – 0.71%	3.28%	0.27% – 1.55%
Rate of compensation increase	N/A	2.50% – 3.00%	N/A	2.50% – 3.00%
Expected return on plan assets	5.00%	N/A	5.00%	N/A

To determine the discount rate for our U.S. benefit plan, we used the FTSE Above Median Pension Discount Curve. For the discount rate used for the other non-U.S. benefit plans we consider local market expectations of long-term returns, primarily utilizing the Iboxx Corporate Index Bond rating AA, duration higher than 10 years. The resulting discount rates are consistent with the duration of plan liabilities.

The expected long-term rate of return on plan assets assumption for our U.S. benefit plan was derived from a study conducted by our investment managers. The study includes a review of anticipated future long-term performance of individual asset classes and consideration of the appropriate asset allocation strategy given the anticipated requirements of the plan to determine the average rate of earnings expected on the funds invested to provide for the pension plan benefits.

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 sets investment guidelines for U.S. pension plans with the assistance of an external consultant. 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. These guidelines are established based on market conditions, risk tolerance, funding requirements and expected benefit payments. 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. and Non-U.S. pension plans target allocations as of 31 December 2019 and 31 December 2018, by asset category, are as follows:

	U.S. Pension Benefits		Non-U.S. Pension Benefits	
	31 December 2019	31 December 2018	31 December 2019	31 December 2018
Equity Securities	30%	29%	1%	3%
Debt Securities	69%	70%	85%	67%
Other	1%	1%	14%	30%

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 and we classify these investments as Level 2.

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 IFRS (in thousands). Refer to "Note 5. Fair Value Measurements" for discussion of the fair value measurement terms of Levels 1, 2, and 3.

(in thousands)	Fair Value as at 31 December 2019	Fair Value Measurement Using Inputs Considered as Level 1	Level 2	Level 3
Equity mutual funds	$ 2,262	$ –	$ 2,262	$ –
Fixed income mutual funds	5,225	–	5,225	–
Money market funds	74	74	–	–
Total	**$ 7,561**	**$ 74**	**$ 7,487**	**$ –**

(in thousands)	Fair Value as at 31 December 2018	Fair Value Measurement Using Inputs Considered as Level 1	Level 2	Level 3
Equity mutual funds	$ 1,961	$ –	$ 1,961	$ –
Fixed income mutual funds	4,734	–	4,734	–
Money market funds	72	72	–	–
Total	**$ 6,767**	**$ 72**	**$ 6,695**	**$ –**

Retirement Benefit Funding Plan

We have the policy to 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.

We contributed $0.9 million and $1.4 million to the pension plans (U.S. and non-U.S.) during the years ended 31 December 2019 and 2018, respectively. We anticipate that we will make contributions to the U.S. pension plan of approximately $1.4 million during fiscal year 2020. Contributions to the non-U.S. pension plans in fiscal year 2020 are not expected to be material. The weighted average duration of the defined benefit plans is approximately 9 years and 10 years for U.S. plan and Non-U.S. plans respectively.

Benefit payments, including amounts to be paid from our assets, and reflecting expected future service, as appropriate, as of 31 December 2019 are expected to be paid as follows (in thousands):

(in thousands)	U.S. Plan	Non-U.S. Plans
2020	$ 3,026	$ 894
2021	812	723
2022	994	966
2023	612	1,066
2024	707	889
2025 – 2029	3,262	5,327
Above 2029	1,819	8,222

Sensitivity Analysis

The sensitivity of the defined benefit obligation as of 31 December 2019 and 31 December 2018 to significant changes in actuarial assumptions are as follows (in thousands):

	31 December 2019		31 December 2018	
	Increase +0.50%	Decrease -0.50%	Increase +0.50%	Decrease -0.50%
Discount rate	$ (1,222)	$ 1,337	$ (1,503)	$ 1,604

The above sensitivity analysis is based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the same method (present value of the defined benefit obligation calculated with the projected until credit method at the end of the reporting year) has been applied as when calculating the defined benefit liability recognised in the consolidated balance sheet.

Severance Indemnity. In Italy, upon termination of employment for any reason, employers are required to pay a TFR to all employees as required by Italian legislation. 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 after 1 January 2007 for employees who have opted for a supplementary pensions system or who have chosen to maintain the TFR at the company, for companies with more than 50 employees. A similar termination indemnity is required in France. In France the Indemnités de Fin de Carrière consists in a termination indemnity which must be paid by the employer to an employee in case of retirement, based on a number of monthly gross salary depending by seniority, type of contract and employee level. We have incurred expenses related to the Italian TFR and France severance indemnity of approximately $1.0 million and $(0.2) million, respectively, for the years ended 31 December 2019 and 31 December 2018, respectively.

Defined Contribution Plans. We sponsor defined contribution plans, 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, covering certain U.S. middle and senior management and the Belgium Defined Contribution Pension Plan for Cyberonics's Belgium employees. We incurred expenses for our defined contribution plans of $12.4 million and $12.0 million for the years ended 31 December 2019 and 31 December 2018, respectively.

Note 25. Income Taxes

Income tax benefit consists of the following (in thousands):

	Year Ended 31 December	
	2019	2018
Current tax	$ 4,282	$ (6,697)
Deferred tax	46,945	78,727
Income tax benefit	**$ 51,227**	**$ 72,030**

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

	Year Ended 31 December	
	2019	2018
Statutory tax rate at U.K. rate	19.0%	19.0%
Effect of changes in tax rate	(1.0)	0.6
Change in unrecognised deferred tax assets	(6.0)	(0.8)
Reduced tax benefit due to non-deductible transaction costs	–	(0.8)
U.S. state and local tax provision, net of federal benefit	2.4	4.2
Foreign tax rate differential	3.0	2.9
Exempt income	0.4	5.9
U.S. tax on non U.S. operations	(0.5)	(0.5)
Research and development tax credits	0.7	1.0
Reserve for uncertain tax positions	0.8	(0.6)
Base erosion anti-abuse tax	0.5	(1.1)
UK CFC tax	0.6	(1.0)
Impairment of goodwill and intangible assets	(11.4)	(0.8)
Other, net	(0.1)	(0.6)
Effective tax rate	8.4%	27.4%

In the Spring Budget 2020, the UK Government announced that from 1 April 2020 the corporation tax rate would remain at 19% (rather than reducing to 17%, as previously enacted). This new law was substantively enacted on 17 March 2020. As the proposal to keep the rate at 19% had not been substantively enacted at the balance sheet date, its effects are not included in these financial statements. However, it is likely that the overall effect of the change, had it been substantively enacted by the balance sheet date, would be to increase the tax benefit for the period by $7.2 million and increase the deferred tax asset by $7.2 million.

U.S. Tax Reform

On 22 December 2017, the U.S. enacted the Tax Act, which significantly changed U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21%, which commenced in 2018. In addition, the Tax Act created a mandatory deemed repatriation tax ("transition tax") 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 transition tax for the year ended 31 December 2017 as we had no previously deferred foreign earnings of U.S. controlled foreign subsidiaries as of the measurement dates. During the fourth quarter of 2018, we finalised our accounting for the remeasurement of the deferred tax assets and liabilities and impairment of foreign tax credits related to the Tax Act. Our accounting for the remeasurement is complete with a final non-cash net charge of $21.0 million.

Deferred Tax Assets and Liabilities

The change in net deferred tax assets (liabilities), inclusive of discontinued operations, as recognised in the balance sheet can be analysed as follows (in thousands):

	Year Ended 31 December	
	2019	2018
At the beginning of the year	$ 14,755	$ (21,788)
Deferred tax benefit for the year, net	46,945	93,977
Deferred tax recorded in equity	(3,630)	(75,140)
Changes from divestitures	–	9,298
Currency translation and other	(101)	8,408
At the end of the year	**$ 57,969**	**$ 14,755**

Deferred tax assets and liabilities, inclusive of discontinued operations, on a gross basis are summarised as follows (in thousands):

		Activity During the Year Ended 31 December 2019		
	31 December 2019	Consolidated Statement of Loss) Income	Shareholders' Equity	31 December 2018
Deferred tax assets				
Net operating loss carryforwards (NOLs)	$ 73,297	$ 9,538	$ 2,652	$ 61,107
Tax credit carryforwards	4,541	(8,305)	650	12,196
Deferred compensation	11,474	7,530	(7,080)	11,024
Accruals and reserves	69,562	(26,944)	23	96,483
Depreciation and amortisation	–	6,592	–	(6,592)
Inventory	11,607	(1,883)	–	13,490
Investments	468	(3,325)	–	3,793
Other	11,826	9,475	125	2,226
Gross deferred tax assets	182,775	(7,322)	(3,630)	193,727
Deferred tax liabilities				
Gain on sale of intellectual property	(53,091)	6,158	–	(59,249)
Investments	–	3,114	–	(3,114)
Property, equipment & intangible assets	(71,715)	44,175	–	(115,890)
Other	–	719	–	(719)
Gross deferred tax liabilities	(124,806)	54,166	–	(178,972)
Deferred tax assets (liabilities), net	$ 57,969	$ 46,844	$ (3,630)	$ 14,755
Reported in the consolidated balance sheet (after jurisdictional netting)				
Net deferred tax assets	$ 76,151			$ 70,581
Deferred tax liabilities	(18,182)			(55,826)
Deferred tax assets, net	$ 57,969			$ 14,755

We remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future.

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: profitability in the most recent quarters; internal forecasts for the current and next two future years; size of deferred tax asset relative to estimated profitability; the potential effects on future profitability from increasing competition, healthcare reforms and overall economic conditions; limitations and potential limitations on the use of our net operating losses due to ownership changes; and the implementation of prudent and feasible tax planning strategies, if any.

Deferred tax assets and liabilities are classified as non-current assets and liabilities.

Net Operating Loss Carryforwards

We had the following net operating loss carryforwards as of 31 December 2019 which can be used to reduce our income tax payable in future years (in thousands):

Region	Gross Amount	Tax Effected Amount Without Expiration	Tax Effected Amount With Expiration	Starting Expiration Year
Europe	$ 254,869	$ 49,032	$ 3,376	2022
U.S. Federal	252,283	17,872	35,108	2021
U.S. State	307,525	5,431	9,179	2020
Rest of World	17,349	5,521	365	2028

Included in the table above are deferred tax assets that have not been recognised with respect of the following items (in thousands):

	31 December 2019	31 December 2018
Tax loss carryforwards	$ 52,587	$ 26,299
Other	23,731	13,956
Total	**$ 76,318**	**$ 40,255**

As a result of the business combination during the transitional period to 31 December 2015, the historic NOL's of Sorin U.S. are limited by IRC section 382. The annual limitation is approximately $18.3 million, which is sufficient to absorb the U.S. net operating losses prior to their expiration. As a result of the April 2018 acquisition of TandemLife, there is an IRC section 382 annual limitation of approximately $17.2 million, which is sufficient to absorb the U.S. net operating losses prior to their expiration.

A significant portion of our worldwide net deferred tax liability relates to the tax effect of the step-up in value of the assets acquired with the acquisition of Sorin S.p.A. on 19 October 2015.

No provision has been made for income taxes on undistributed earnings of foreign subsidiaries as of 31 December 2019 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 31 December 2019, it was not practicable to determine the amount of the deferred income tax liability related to those investments.

Uncertain Tax Positions

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 unrecognised tax benefits as of 31 December 2019 were recognised, $12.9 million would impact our effective tax rate. We believe it is reasonably possible that the amount of gross unrecognised tax benefits could be reduced by up to $12.0 million in the next 12 months as a result of the resolution of tax matters in various global jurisdictions and the lapses of statutes of limitations. Refer to "Note 26. Commitments and Contingencies" for additional information regarding the status of current tax litigation.

Accrued interest and penalties related to uncertain tax positions totalled $5.7 million and $6.3 million as of

31 December 2019 and 31 December 2018, respectively, and were included in non-current provisions on our consolidated balance sheet.

Brexit

On 31 January 2020, the UK departed from the EU (in a move commonly referred to as "Brexit"), and the UK will now enter a transition period that is scheduled to end on 31 December 2020, unless requested to be extended before 1 July 2020. During the transition period, the UK will cease to be an EU member, but the trading relationship will remain the same under the EU's rules. Although the long-term effects of Brexit will depend on any agreements the UK makes to retain access to the EU markets during the transition period, Brexit has created additional uncertainties that may ultimately result in new regulatory costs and challenges for medical device companies and increased restrictions on imports and exports throughout Europe. This could adversely affect our ability to conduct and expand our operations in Europe and may have an adverse effect on our business, financial condition and results of operations.

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 transition period concludes. 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.

We and several of our wholly owned subsidiaries that are domiciled either in the UK, various EU Member States, or in the U.S., 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. We continue to 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 there are material changes in tax laws or treaties between the UK and other countries.

European Union State Aid Challenge

On 26 October 2017, the European Commission ("EC") announced that an investigation would be opened with respect to the UK's controlled foreign company ("CFC") rules for the period 1 January 2013 through 31 December 2018. Under the CFC rules, financing profits of entities controlled by UK parent companies are taxed when the funding originates in the UK, or Significant People Functions relating to the financing are located in the UK. The provisions under investigation provide group finance exemptions related to the profits of entities involved in financing of the non-UK group activities. On 2 April 2019, the EC concluded that "when financing income from a foreign group company, channelled through an offshore subsidiary, is financed with UK connected capital and there are no UK activities involved in generating the finance profits, the group finance exemption is justified and does not constitute State aid under EU rules." However, in relation to Significant People Functions, "when financing income from a foreign group company, channelled through an offshore subsidiary, derives from UK activities, the group finance exemption is not justified and constitutes State aid under EU rules." Her Majesty's Revenue and Customs ("HMRC") has stated that they do not consider the timing and form of the UK's exit from the EU will have a practical impact on the requirement to recover the alleged aid. On 14 June 2019, the UK filed an appeal to the Commission's decision. On 5 July 2019, HMRC began the first step in the recovery process to identify beneficiaries and sent letters asking for information. Based upon our assessment of the technical arguments as to whether the exemption is State aid, together with no UK activities involved in our financing, no uncertain tax position reserve has been recognised related to this matter. Furthermore, in December 2019, we amended our 2017 tax return filing to avail ourselves of different rules to determine UK taxation, which are not subject to the EU decision. We filed our 2018 tax return similarly, and therefore, we do not believe that the EU state aid decision will result in a material liability.

Other Matters

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, and the changes in tax laws, our consolidated effective income tax rate may vary from one reporting year 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	2001
Italy	2015
Germany	2014
England and Wales	2017
Canada	2015

Note 26. Commitments and Contingencies

FDA Warning Letter

On 29 December 2015, the FDA issued a 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 24 August 2015 to 27 August 2015 and the Arvada facility from 24 August 2015 to 1 September 2015. On 27 August 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 were 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 had informed us that the import alert was limited to the 3T devices, but that the agency reserved the right to expand the scope of the import alert if future circumstances warranted 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 were 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 were reasonably related would not be approved until the violations had been corrected; however, this restriction applied only to the Munich and Arvada facilities, which do not manufacture or design devices subject to Class III premarket approval.

On 25 February 2020, LivaNova received clearance for K191402, a 510(k) for the 3T devices that addressed issues contained in the 2015 Warning Letter along with design changes that further mitigate the potential risk of aerosolization. Concurrent with this clearance, (1) 3T devices manufactured in accordance with K191402 will not be subjected to the import alert and (2) LivaNova initiated a correction to distribute the updated Operating Instructions cleared under K191402.

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 13 October 2016, the CDC and the 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 18 August 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 13 October 2016, concurrent with the CDC's HAN and FDA's Safety Communication, 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, including a vacuum canister and internal sealing upgrade program and a deep disinfection service. This loaner program began in the U.S. and was rolled out in Europe shortly thereafter. It is being made available progressively on a global basis, prioritising 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 the risk mitigation strategies described above. We are currently implementing the vacuum and sealing upgrade program in as many countries as possible until all devices are upgraded. On 11 October 2018, after review of information provided by us, the FDA concluded that we could commence the vacuum and scaling upgrade program in the U.S., and on 25 February 2020, LivaNova received clearance for K191402, a 510(k) for the 3T devices that addressed issues contained in the 2015 Warning Letter along with design changes that further mitigate the potential risk of aerosolization. Furthermore, we continue to offer a no-charge deep disinfection service (deep cleaning service) for 3T device users as we receive the required regulatory approvals. The deep disinfection service was rolled out in Europe in the second half of 2015, and on 12 April 2018, the FDA agreed to allow us to move forward with the deep cleaning service in the U.S., thereby adding to the growing list of countries around the world in which we offer this service.

On 31 December 2016, we recognised 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 31 December 2019, the product remediation liability was $3.3 million. Refer to "Note 21. Contingent Consideration, Litigation Provision Liability and Other Provisions" for additional information.

Litigation

Product Liability

The Company is currently involved in litigation involving our 3T device. 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, various U.S. state court cases and cases in jurisdictions outside the U.S. The class action, filed in February 2016, 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.

On 29 March 2019, we announced a settlement framework that provides for a comprehensive resolution of the personal injury cases pending in the multi-district litigation in U.S. federal court, the related class action pending in federal court, as well as certain cases in state courts across the United States. The agreement, which makes no admission of liability, is subject to certain conditions, including acceptance of the settlement by individual claimants and provides for a total payment of up to $225 million to resolve the claims covered by the settlement. Per the agreed-upon terms, the first payment of $135 million was paid into a qualified settlement fund in July 2019 and the second payment of $90 million was paid in January 2020. Cases covered by the settlement are being dismissed as amounts are disbursed to individual plaintiffs from the qualified settlement fund.

Cases in state courts in the U.S. and in jurisdictions outside the U.S. continue to progress. As of 29 April 2020, including the cases encompassed in the settlement framework described above that have not yet been dismissed, we are aware of approximately 90 filed and unfiled claims worldwide, with the majority of the claims in various federal or state courts throughout the United States. This number includes cases that have settled but have not yet been dismissed. 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 or concealment, unjust enrichment, and violations of various state consumer protection statutes.

In the fourth quarter of 2018, we recognised a $294.1 million provision for these matters. In the fourth quarter of 2019, we recorded an additional liability of $33.2 million due to additional information obtained, including but not limited to: the nature and quantity of filed and unfiled claims; certain settlement discussions with plaintiffs' counsel; and the current stage of litigation in our remaining filed and unfiled claims. At 31 December 2019, the provision was $170.4 million. While the amount accrued represents our best estimate, the actual liability for resolution of these matters may vary from our estimate.

In July 2019, we entered into agreements with our insurance carriers to recover $33.8 million under our product liability insurance policies related to the litigation involving our 3T device. The insurance recovery was received and recorded in exceptional items on the consolidated statement of (loss) income during the third quarter of the current fiscal year.

Environmental Liability

Our subsidiary, Sorin S.p.A. ("Sorin") 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 to the Supreme Court. In addition, the Bankruptcy Court of Milan's decision has been appealed.

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 1 April 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 €292,000 (approximately $328,000 as of 31 December 2019) for legal fees. The Public Administrations appealed the 2016 Decision to the Court of Appeal of Milan. On 5 March 2019, the Court of Appeal issued a partial decision on the merits declaring Sorin/LivaNova jointly liable with SNIA for SNIA's environmental liabilities in an amount up to the fair value of the net worth received by Sorin because of the Sorin spin-off, an estimated €572.1 million (approximately $641.9 million as of 31 December 2019). Additionally the Court issued a separate order, staying the proceeding until a Panel of three experts can assess the environmental damages, the costs of clean-up, and the costs that the Public Administrations has already borne for the clean-up of the sites to allow the Court to decide on the second claim of the Public Administrations against LivaNova, (i.e., to refund the Public Administration for the SNIA environmental liabilities). In the interim, we are appealing the decision to the Italian Supreme Court (Corte di Cassazione).

We have not recognised 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 28 July 2015, the Public Administrations filed an opposition proceeding before the Commercial Division of the Court of Milan to the merger of Sorin and Cyberonics, Inc., the predecessor companies to LivaNova. The Court authorised the merger, and the Public Administrations did not appeal that decision. The proceeding then continued as a civil case, with the Public Administrations seeking damages. The Commercial Court of Milan delivered a decision in October 2016, fully rejecting the Public Administrations' request and awarding us approximately €400,000 (approximately $449,000 as of 31 December 2019) in damages for frivolous litigation and legal fees. The Public Administrations appealed to the Court of Appeal of Milan. On 15 May 2018, the Court of Appeal of Milan confirmed the decision authorizing the merger but annulled the penalty for frivolous litigation and reduced the overall contribution of legal fees to €84,000 (approximately $94,000 as of 31 December 2019). On 28 February 2020, the Supreme Court confirmed the decision, authorizing the merger and increasing the overall contribution of legal fees to LivaNova to €98,000 (approximately $110,000 as of 31 December 2019). There is no further avenue of appeal in this matter, and the matter is now concluded.

Patent Litigation

On 11 May 2018, Neuro and Cardiac Technologies LLC ("NCT"), a non-practising entity, filed a complaint in the United States District Court for the Southern District of Texas asserting that the VNS Therapy System, when used with the SenTiva Model 1000 generator, infringes the claims of U.S. Patent No. 7,076,307 owned by NCT. The complaint requests damages that include a royalty, costs, interest, and attorneys' fees. On 13 September 2018, we petitioned the Patent Trial and Appeal Board of the U. S. Patent and Trademark Office (the "Patent Office") for an inter partes review ("IPR") of the validity of the '307 patent. The Patent Office instituted an IPR of all the challenged claims. The Court has stayed the litigation pending the outcome of the IPR proceeding. We have not recognised 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.

Contract Litigation

On 25 November 2019, LivaNova received notice of a lawsuit initiated by former members of Caisson Interventional, LLC ("Caisson"), a subsidiary of the Company acquired in 2017. The lawsuit, Todd J. Mortier, as Member Representative of the former Members of Caisson Interventional, LLC v. LivaNova USA, Inc., is currently pending in the United States District Court for the District of Minnesota. The complaint alleges (i) breach of contract, (ii) breach of the covenant of good faith and fair dealing and (iii) unjust enrichment in connection with the Company's operation of Caisson's Transcatheter Mitral Valve Replacement ("TMVR") program and the Company's 20 November 2019 announcement that it was ending the TMVR program at the end of 2019. The lawsuit seeks damages arising out of the 2017 acquisition agreement, including various regulatory milestone payments. We intend to vigorously defend this claim. The Company has not recognised 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.

Tax Litigation

In a tax audit report received on 30 October 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 $115.1 million as of 31 December 2019), 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. recognised in 2002 and deducted in five equal instalments, beginning in 2002. In December 2009, the Internal Revenue Office issued notices of assessment for 2004. 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 3 February 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. On 16 November 2018, the Supreme Court returned the decisions for years 2005 and 2006 to the previous-level Court (Regional Tax Court) due to lack of substance of the motivation given in the 2nd level judgments that were appealed.

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 $70.2 million as of 31 December 2019). 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 recognised a reserve for an uncertain tax position for the full amount of the potential liability. On 31 May 2019, we filed an application to settle the litigation according to law N. 136/2018 and paid the required settlement balance of €1.9 million. As per law N. 136/2018, the Italian Revenue Agency will review the settlement and decide to accept or reject the application by 31 July 2020. Until the settlement is accepted by the Italian Revenue Agency, we will continue to reserve for the full amount of the potential liability, by recognizing a €15.5 million reserve for uncertain tax position (approximately $17.4 million, as of 31 December 2019), net of the settlement payment.

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 income, financial position or liquidity.

Note 27. Earnings Per Share

Basic EPS is calculated by dividing the profit for the year attributable to owners of the parent by the weighted average number of Ordinary Shares outstanding during the year. Diluted EPS is calculated by dividing the net profit attributable to attributable to owners of the parent by the weighted average number of Ordinary Shares outstanding during the year plus the weighted average number of Ordinary Shares that would be issued on conversion of all the dilutive potential Ordinary Shares into Ordinary Shares.

The following table sets forth the basic and diluted weighted-average shares outstanding used in the computation of basic and diluted earnings per share (in thousands of shares):

	Year Ended 31 December	
	2019	2018
Numerator:		
Net loss from continuing operations	$ (559,231)	$ (190,685)
Net income (loss) from discontinued operations	365	(9,954)
Loss attributable to owners of the parent	$ (558,866)	$ (200,639)
Denominator:		
Basic weighted average shares outstanding	48,349	48,497
Add effects of stock-based compensation instruments[(1)]	–	–
Diluted weighted average shares outstanding.	48,349	48,497
Basic (loss) earnings per share:		
Continuing operations	$ (11.57)	$ (3.93)
Discontinued operations	0.01	(0.21)
	$ (11.56)	$ (4.14)
Diluted (loss) earnings per share:		
Continuing operations	$ (11.57)	$ (3.93)
Discontinued operations	0.01	(0.21)
	$ (11.56)	$ (4.14)

(1) Excluded from the computation of diluted earnings per share for the years ended 31 December 2019 and 31 December 2018 were stock options, SARs and RSUs totalling 2.9 million and 2.7 million because to include them would have been anti-dilutive.

Note 28. Segment and Geographic Information

Segment Information

We identify operating segments based on the way we manage, evaluate and internally report our business activities to our chief operating decision maker ("CODM"), who is the Chief Executive Officer of LivaNova, for purposes of allocating resources and assessing performance. We have two operating segments: Cardiovascular and Neuromodulation.

The Cardiovascular segment generates its revenue from the development, production and sale of cardiopulmonary products, heart valves and related products and advanced circulatory support. Cardiopulmonary products include oxygenators, heart-lung machines, autotransfusion systems, perfusion tubing systems, cannulae and other related accessories. Heart valves include mechanical heart valves, tissue heart valves, related repair products and minimally invasive surgical instruments. Advanced circulatory support includes temporary life support product kits that can include a combination of pumps, oxygenators, and cannulae. On 12 June 2019, we acquired the minimally invasive cardiac surgery instruments business from Miami Instruments, which are integrated into our Cardiovascular business franchise as part of our Heart Valves portfolio.

Our Neuromodulation segment generates its revenue from the design, development and marketing of neuromodulation therapy systems for the treatment of drug-resistant epilepsy, DTD and obstructive sleep apnea. Neuromodulation products include the VNS Therapy System, which consists of an implantable pulse generator, a lead that connects the generator to the vagus nerve, and other accessories.

"Other" includes corporate shared service expenses for finance, legal, human resources and information technology and corporate business development and New Ventures.

Net sales of our operating segments include revenues from the sale of products they each develop and manufacture or distribute. We define segment income as operating income before exceptional items. This measurement is included in the reporting package prepared for and used by the CODM in evaluating performance and allocating resources.

Geographic Information

We operate under three geographic regions: United States, Europe, and Rest of World.

As further described in "Note 3. Revenue Recognition," our Cardiovascular segment has three primary product lines: cardiopulmonary, heart valves and advanced circulatory support. The table below presents revenue disaggregated by operating segment, major product line and primary geographic market (in thousands):

	Year Ended 31 December	
	2019	2018
Cardiopulmonary		
United States	$ 161,471	$ 161,134
Europe	135,632	141,720
Rest of World	207,613	233,554
	504,716	536,408
Heart Valves		
United States	18,900	24,709
Europe	40,548	44,258
Rest of World	60,559	56,989
	120,007	125,956
Advanced Circulatory Support		
United States	30,781	18,588
Europe	741	580
Rest of World	401	293
	31,923	19,461
Cardiovascular		
United States	211,152	204,431
Europe	176,921	186,558
Rest of World	268,573	290,836
	656,646	681,825
Neuromodulation		
United States	335,332	348,980
Europe	46,262	42,443
Rest of World	42,953	31,567
	424,547	422,990
Other	2,977	2,146
Totals		
United States	546,484	553,411
Europe[1]	223,183	229,001
Rest of World	314,503	324,549
Total[2][3]	**$ 1,084,170**	**$ 1,106,961**

(1) 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.

(2) Revenue with external customers includes $37.7 million and $34.8 million in the United Kingdom, our country of domicile, for the years ended 31 December 2019 and 2018, respectively.

(3) No single customer represented over 10% of our consolidated net sales. No country's net sales exceeded 10% of our consolidated sales except for the U.S.

The table below presents a reconciliation of segment (loss) income from continuing operations to consolidated (loss) income from continuing operations (in thousands):

	Year Ended 31 December	
	2019	2018
Operating (loss) profit before exceptional items		
Cardiovascular	$ (10,925)	$ (1,049)
Neuromodulation	133,042	183,847
Other	(80,568)	(103,822)
Total operating income before exceptional items	41,549	78,976
Exceptional items	635,837	334,356
Operating loss from continuing operations	$ (594,288)	$ (255,380)

The following tables present capital expenditures by operating segment (in thousands):

	Year Ended 31 December	
	2019	2018
Capital expenditures		
Cardiovascular	$ 21,691	$ 27,621
Neuromodulation	7,506	1,728
Other	3,921	7,630
Discontinued operations	–	1,018
Total	**$ 33,118**	**$ 37,997**

Property, plant, and equipment, net by geography are as follows (in thousands):

	31 December 2019	31 December 2018
United States	$ 55,285	$ 61,315
Europe	104,540	109,252
Rest of World	9,096	9,785
Total	**$ 168,921**	**$ 180,352**

Note 29. Related Parties

Interests in subsidiaries are set out in "Note 12. Investments in Subsidiaries." Transactions between the Company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

The following receivable balance arose from financing transactions with an equity investment (in thousands):

Balance Sheet	31 December 2019	31 December 2018
Other financial assets – current		
Respicardia, Inc.	$ 642	$ 597

The following financing transaction was entered into with an equity investment during the years as follows (in thousands):

	Year Ended 31 December	
Statement of (Loss) Income	2019	2018
Finance income		
Respicardia, Inc.	$ 45	$ 48

Total compensation in respect of key management, who are defined as the Board of Directors and certain members of senior management, is considered to be a related party transaction.

The total compensation in respect of key management was as follows (in thousands):

	Year Ended 31 December	
	2019	2018
Salaries and short term benefits	$ 6,502	$ 7,480
Post-employment long-term benefits	502	530
Share-based compensation	9,417	8,704
Total	$ 16,421	$ 16,714

Amounts received or receivable under share-based payment arrangements were $6.8 million and $9.8 million during the years ended 31 December 2019 and 2018.

There were no other material related party transactions in the year.

Details of directors' remuneration are included in pages 42 to 56 of the Directors' Remuneration Report, which forms part of these financial statements.

Note 30. Consolidated Statement of (Loss) Income – Expenses by Nature

	Year Ended 31 December	
(in thousands)	**2019**	**2018**
Net sales	$ 1,084,170	$ 1,106,961
Other revenues and income	5,831	9,739
Cost of materials, service used and change in inventory	(508,054)	(500,427)
Personnel expense	(454,687)	(460,173)
Litigation provision, net	601	(294,021)
Other operating costs	(23,898)	(31,321)
Amortisation of intangibles and other assets	(46,476)	(43,738)
Depreciation and impairment of property, plant and equipment	(28,152)	(26,757)
Depreciation of right-of-use assets	(13,054)	–
Additions to provisions	(7,995)	(12,704)
Gain on acquisitions	–	5,994
Impairment of goodwill	(379,493)	–
Impairment of intangible assets	(221,234)	–
Interest expense	(16,402)	(9,825)
Interest income	803	847
Foreign exchange and other losses	(571)	(1,925)
Impairment of financial assets	(1,847)	(2,939)
Share of loss from equity accounted investments	–	(644)
Loss from continuing operations before tax	(610,458)	(260,933)
Income tax benefit	51,227	70,248
Income (loss) from discontinued operations, net of tax	365	(9,954)
Loss attributable to owners of the parent	$ (558,866)	$ (200,639)

Note 31. Employee and Key Management Compensation Costs

	Year Ended 31 December	
(in thousands)	**2019**	**2018**
Wages and salaries	$ 362,147	$ 361,868
Share-based payments[1]	37,219	30,893
Other employee costs	55,321	67,412
	$ 454,687	$ 460,173

(1) Represents share-based payments included in personnel expense. Refer to "Note 23. Share-Based Incentive Plans" for total share-based compensation expense.

Employee numbers

The monthly average number of employees by geographic region during the years ended 31 December 2019 and 31 December 2018 are as follows (in thousands):

	Year Ended 31 December	
	2019	**2018**
U.S.	1,223	1,161
Europe	2,084	2,371
Rest of World	561	569
Total[1]	3,868	4,101

(1) The 2018 average includes approximately 900 employees of the CRM business franchise that was sold on 30 April 2018.

Note 32. Exceptional Items

The following exceptional items are included within operating (loss) income (in thousands):

	Year Ended 31 December	
	2019	2018
Exceptional items:		
Merger and integration expenses	$ 23,457	$ 24,420
Restructuring expenses	12,254	15,915
Impairment of goodwill	379,493	–
Impairment of intangible assets	221,234	–
Litigation provision, net	(601)	294,021
Total exceptional items	635,837	334,356
Other non-recurring items:		
Product remediation expenses	15,777	10,680
Acquisition costs	(717)	10,933
Non-recurring legal, contingent consideration and other reserves	37,079	29,232
Impairment of plant, property and equipment	3,207	132
Gain on acquisition	–	(4,212)
CRM disposal costs	–	4,197
Total exceptional items and other non-recurring items	$ 691,183	$ 385,318

Merger and integration expenses. Merger and integration expenses consist of costs associated with our merger and business combinations. Such costs primarily include computer systems integration efforts, organizational structure integration, synergy and tax planning. While merger and integration costs continue into fiscal year 2020, we expect these costs to decline over time.

Refer to "Note 7. Business Combinations" for more details.

Restructuring expenses. We have initiated several restructuring plans to leverage economies of scale, streamline distribution and logistics and strengthen operational and administrative effectiveness in order to reduce overall costs. We identify costs incurred and liabilities assumed for the restructuring plans. Refer to "Note 9. Restructuring" for more details.

Impairment of goodwill. Refer to "Note 11. Goodwill and Intangible Assets" for more details.

Impairment of intangible assets. Refer to "Note 11. Goodwill and Intangible Assets" for more details.

Litigation provision, net. Litigation provision, net represents the expense associated with the settlement of the claims associated with our 3T device, net of insurance recovery. During the year ended 31 December 2018, we recognised a $294.0 million provision for these claims. During the year ended 31 December 2019, we recorded an additional provision of $33.2 million, more than offset by $33.8 million from insurance recoveries. See further discussion within "Note 26. Commitments and Contingencies."

Note 33. Auditors' Remuneration

	Year Ended 31 December	
(in thousands)	2019	2018
Total audit fees payable to the Company's auditor	$ 7,510	$ 8,274
Audit-related services	–	18
Taxation compliance services	–	61
Taxation advisory services	443	326
Other non-audit services	1	1
Total fees payable to the Company's auditor	$ 7,954	$ 8,680

Note 34. New Accounting Pronouncement

IFRS 16 Leases. IFRS 16 'Leases' was adopted on 1 January 2019. Refer to "Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies" for discussion on the adoption of this standard.

IFRIC 23 Taxes. IFRIC 23 'Uncertainty Over Income Tax Treatments' addresses the accounting for income taxes when there is uncertainty over tax treatments. It clarifies that an entity must consider the probability that the tax authorities will accept a treatment retained in its income tax filings, assuming that they have full knowledge of all relevant information when making their examination. In such a case, the income taxes shall be determined in line with the income tax filings. The Group adopted IFRIC 23 on 1 January 2019, and there was no impact to the financials as a result of this.

There are no other standards and interpretations in issue but not yet adopted that the management anticipate will have a material effect on the reported income or net assets of the Company.

Note 35. Subsequent Events

MicroPort Scientific Corporation ("MicroPort")

In March 2020, we finalised the working capital adjustment associated with the sale of CRM to MicroPort Cardiac Rhythm B.V. and MicroPort. As a result, we made a $16.4 million payment to MicroPort during the first quarter of 2020.

Litigation – Product Liability

In January 2020, we made a $90 million payment into a qualified settlement fund per the terms of the settlement framework established for resolution of the personal injury cases associated with our 3T device that are pending in the multi-district litigation in U.S. federal court, the related class action pending in federal court, as well as certain cases in state courts across the United States.

COVID-19

A new strain of coronavirus (COVID-19) has spread to many countries in the world and the outbreak has been declared a pandemic by the World Health Organization. The U.S. Secretary of Health and Human Services has also declared a public health emergency in the United States in response to the outbreak. Considerable uncertainty still surrounds the COVID-19 virus and its potential effects, and the extent of and effectiveness of responses taken on international, national and local levels. Measures taken to limit the impact of COVID-19, including shelter-in-place orders, social distancing measures, travel bans and restrictions, and business and government shutdowns, have already resulted in significant negative economic impacts on a global basis.

Due to these impacts and measures, we have experienced and may continue to experience significant and unpredictable reductions in the demand for our products as healthcare customers divert medical resources and priorities towards the treatment of COVID-19. In addition, our customers may delay, cancel, or redirect planned purchases in order to focus resources on COVID-19 or in response to economic disruption related to COVID-19. For example, in the last two weeks of March 2020, we experienced a significant decline in volumes in the U.S. and Europe, as healthcare systems diverted resources to meet the increasing demands of managing COVID-19. In addition, public health bodies have recommended delaying elective surgeries during the COVID-19 pandemic, which may continue to negatively impact the usage of our products, including the number of Neuromodulation procedures.

As a result of this risk, in April 2020, the Group entered into amendments that modified the maximum consolidated net debt to EBITDA and the interest coverage ratio covenants in its debt agreements for the remainder of 2020. The Group also implemented cost-cutting measures, including reduced hiring, marketing, travel, capital expenditures and certain research and development activities.

A decline in future cash flows could result in an impairment to our assets. From an impairment assessment perspective, the impact of COVID-19 has been treated as a non-adjusting event on the basis that government actions in response to the pandemic, which had a direct impact on the Group's business, were not announced until after the balance sheet date.

Although all CGUs with the exception of Heart Valves had significant headroom as at 31 December 2019, we assessed whether the delay of elective surgeries, reduced cash flow projections, and the significant decline in LivaNova's market capitalization as a result of the COVID-19 pandemic indicate that it is more likely than not that the goodwill of $582.3 million was impaired. Our assessment included review of our previous forecasts and assumptions based on our current projections that are subject to various risks and uncertainties, including: (1) forecasted revenues, expenses and cash flows, including the estimated duration and extent of impact to our business from the COVID-19 pandemic, (2) current discount rates, (3) the reduction in our market capitalization, (4) observable market transactions and (5) changes to the regulatory environment. Additionally, the Group evaluated whether it is more likely than not that indefinite-lived IPR&D assets of $115.8 million were impaired by assessing whether the COVID-19 pandemic would delay clinical trials or impact the

estimated commercialization timelines. These post balance sheet impairment trigger assessments were performed as at 31 March 2020.

With the exception of the Heart Valves CGU, we have determined that a post balance sheet impairment test of goodwill and IPR&D is not required as of 31 March 2020 as it is not more likely than not that these assets are impaired. However, we are unable to predict how long these conditions will persist, what additional measures may be introduced by governments or private parties or what effect any such additional measures may have on our business. If current market conditions deteriorate further as a result of COVID-19, or management's judgments and assumptions regarding future industry, market or operating conditions change, including our assumptions regarding the timing of when elective surgeries may be rescheduled, or if there are government interventions impacting our areas of operation we may recognize an impairment of our goodwill or indefinite-lived intangible assets in future periods.

We determined that intangible assets associated with our Heart Valves CGU were at the greatest risk of impairment as they were written down to fair value as at 31 December 2019. At 31 December 2019, the carrying values of our Heart Valve intangible assets were $71.9 million. However, it is too early to determine, what, if any, permanent diminution in value has occurred as a result of the impact of COVID-19, and this will be assessed during 2020 as part of the annual carrying value assessment exercise when more certainty regarding demand for our products and the availability of hospital spaces for elective surgeries is known.

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Company Statement of (Loss) Income (In thousands)

	Note	Year Ended 31 December 2019	Year Ended 31 December 2018
Revenue		$ 17,773	$ 18,947
Costs and expenses:			
Net operating expenses		(73,129)	(77,537)
Exceptional items	19	(158,713)	(118,630)
Operating loss		(214,069)	(177,220)
Income from subsidiary undertakings		158,090	50,202
Interest income		6,178	10,934
Interest expense	10	(18,063)	(14,195)
Foreign exchange		(1,425)	(4,841)
Loss before tax		(69,289)	(135,120)
Income tax benefit	14	20,006	11,356
Loss for the year		$ (49,283)	$ (123,764)

LIVANOVA PLC

Company Statement of Comprehensive Income (In thousands)

	Note	Year Ended 31 December 2019	Year Ended 31 December 2018
Loss for the year		$ (49,283)	$ (123,764)
Items of other comprehensive income (loss) that will subsequently be reclassified under profit:			
Cash flow hedges for interest rate fluctuations	8	92	66
Tax impact		(21)	(16)
Foreign currency translation differences		(8,732)	(22,936)
Total items of other comprehensive loss that will subsequently be reclassified under profit.		(8,661)	(22,886)
Items of other comprehensive (loss) income that will not subsequently be reclassified under profit:			
Remeasurements of net assets for defined benefits		(16)	(3)
Tax impact		3	1
Total items of other comprehensive loss that will not subsequently be reclassified under profit		(13)	(2)
Total other comprehensive loss, net of taxes		(8,674)	(22,888)
Total comprehensive loss for the year, net of taxes		$ (57,957)	$ (146,652)

LIVANOVA PLC

Company Balance Sheet (In thousands)

	Note	31 December 2019	31 December 2018
ASSETS			
Non-current assets			
Property, plant and equipment	3	$ 1,043	$ 1,204
Intangible assets	4	3,519	971
Right-of-use assets	11	6,302	–
Investments in subsidiaries	5	2,866,406	3,029,177
Other financial assets	6	105,517	17,706
Deferred tax assets	14	26,080	15,271
Other assets		30,621	21,813
Total non-current assets		3,039,488	3,086,142
Trade receivables	7	6,374	1,192
Other receivables		15,818	12,587
Derivative financial instruments	8	350	237
Other financial assets	6	214,397	348,586
Tax receivable		13,085	9,791
Cash and cash equivalents		35,776	23,553
Total current assets		285,800	395,946
Total assets		$ 3,325,288	$ 3,482,088
LIABILITIES AND EQUITY			
Equity			
Share capital	9	$ 76,257	$ 76,144
Merger relief reserve	9	66,446	66,446
Share premium	9	23,243	18,516
Capital redemption reserve	9	1,897	1,897
Treasury shares	9	(1,263)	(1,462)
Accumulated other comprehensive income	9	5,523	14,197
Retained earnings		2,436,130	2,459,442
Total equity		$ 2,608,233	$ 2,635,180
Non-current liabilities			
Derivative financial instruments	8	$ 61	$ 329
Financial liabilities	10	329,415	243,154
Provision for employee severance indemnities and other employee benefit provisions		2,464	1,852
Lease liabilities	11	4,547	–
Other liabilities		–	1,242
Deferred tax liabilities	14	1,183	–
Total non-current liabilities		337,670	246,577
Current liabilities			

	Note	31 December 2019	31 December 2018
Trade payables		16,093	14,703
Other payables	12	24,100	28,839
Provisions		380	88
Derivative financial instruments	8	3,173	5,294
Lease liabilities	11	1,636	–
Other financial liabilities	10	333,977	549,438
Tax payable		26	1,969
Total current liabilities		379,385	600,331
Total liabilities and equity		$ 3,325,288	$ 3,482,088

Registration number 09451374

The financial statements on pages 139 to 167 were approved by the Board of Directors and were signed on its behalf on 8 May 2020 by:

DAMIEN MCDONALD
CHIEF EXECUTIVE OFFICER & DIRECTOR

LIVANOVA PLC

Company Statement of Changes in Equity (In thousands)

	Note	Ordinary Shares: Number of Shares	Ordinary Shares: Share Capital	Merger Relief Reserve	Share Premium	Capital Redemption Reserve	Treasury Shares	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total Equity
Balance at 31 December 2017		48,290	$74,750	$66,446	$14,485	$1,257	$ (133)	$ 37,085	$2,613,939	$2,807,829
Share-based compensation plans	13	110	147	–	4,031	–	558	–	19,267	24,003
Issuances of ordinary shares		1,423	1,887	–	–	–	(1,887)	–	–	–
Purchase of ordinary shares	9	(500)	(640)	–	–	640	–	–	(50,000)	(50,000)
Total transactions with owners, recognised directly in shareholders' equity		1,033	1,394	–	4,031	640	(1,329)	–	(30,733)	(25,997)
Loss for the year		–	–	–	–	–	–	–	(123,764)	(123,764)
Other comprehensive loss		–	–	–	–	–	–	(22,888)	–	(22,888)
Total comprehensive loss for the year		–	–	–	–	–	–	(22,888)	(123,764)	(146,652)
Balance at 31 December 2018		49,323	76,144	66,446	18,516	1,897	(1,462)	14,197	2,459,442	2,635,180
Share-based compensation plans	13	88	113	–	4,727	–	199	–	25,971	31,010
Total transactions with owners, recognised directly in shareholders' equity		88	113	–	4,727	–	199	–	25,971	31,010
Loss for the year		–	–	–	–	–	–	–	(49,283)	(49,283)
Other comprehensive loss		–	–	–	–	–	–	(8,674)	–	(8,674)
Total comprehensive loss for the year		–	–	–	–	–	–	(8,674)	(49,283)	(57,957)
Balance at 31 December 2019		49,411	$76,257	$66,446	$23,243	$1,897	$(1,263)	$ 5,523	$2,436,130	$2,608,233

LIVANOVA PLC

NOTES TO THE FINANCIAL STATEMENTS

Note 1. Nature of Operations

Company information

LivaNova PLC ("LivaNova PLC", the "Company," "we" or "our") is a public limited company incorporated in the United Kingdom under the Companies Act 2006 (Registration number 09451374). The Company is domiciled in the England and Wales and its registered address is 20 Eastbourne Terrace, London, W2 6LG, United Kingdom.

Background

LivaNova PLC was organized under the laws of England and Wales on 20 February 2015 for the purpose of facilitating the business combination of Cyberonics, Inc., ("Cyberonics") a Delaware corporation and Sorin S.p.A., ("Sorin"), a joint stock company organized under the laws of Italy. As a result of the business combination, LivaNova PLC, headquartered in London, became the holding company of the combined businesses of Cyberonics and Sorin. This business combination became effective on 19 October 2015, at which time LivaNova's Ordinary Shares were listed for trading on the Nasdaq and on the London Stock Exchange as a standard listing under the trading symbol "LIVN." Upon the consummation of the business combination of Cyberonics and Sorin, the historical financial statements of Cyberonics became the Company's historical financial statements. On 23 February 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 4 April 2017. We continue to serve our shareholders through our listing on the Nasdaq.

As part of the Mergers Sorin undertook a cross-border legal entity merger with LivaNova (the "Sorin merger") under which LivaNova was the surviving ultimate holding company. The Company elected to apply predecessor accounting to this common control business combination and as a result of the Sorin merger the assets and liabilities of Sorin were transferred to LivaNova and recorded in the Company's books using the predecessor book values in the amount of $903.0 million as at the date of the transfer. All shares of Sorin were cancelled and LivaNova issued 22,673 thousand shares to the Sorin shareholders. In respect of both of these share issues, the Company took merger relief in line with the Companies Act 2006 and recorded a merger relief reserve instead of share premium in the amount of $867.9 million.

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 cardiovascular disease 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 minimise healthcare costs.

Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies

Basis of Preparation

The separate financial statements of LivaNova PLC have been prepared on a going concern basis under the historical cost convention, except for derivative financial instruments and share based payments awards that have been measured at fair value in accordance with the Companies Act 2006 as applicable to companies using FRS 101. The financial statements are presented in U.S. dollars and all values are rounded to the nearest thousands, except when otherwise indicated. Our accounting policies have been applied consistently in 2019 as compared to 2018, other than where new policies have been adopted.

The LivaNova PLC Consolidated Group ("Consolidated Group") conditions may impact the value of the Company's investments in its subsidiaries and the Company's ability to recover amounts due from subsidiaries. Refer to "Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies" to the Consolidate Group financial

statements in this 2019 Annual Report for the Consolidated Group going concern assessment. Based on the assessment performed, the directors are satisfied that the risk of a breach of banking covenants through at least twelve months from the issuance date of these Company financial statements could be mitigated and therefore, it is appropriate to adopt the going concern basis in preparing the Company financial statements.

The financial statements for the years ended 31 December 2019 and 31 December 2018 of LivaNova have been prepared in accordance with Financial Reporting Standard 101 'Reduced Disclosure Framework' ("FRS 101"). The following exemptions from the requirements of IFRS have been applied in the preparation of these financial statements, in accordance with FRS 101:

Standard Disclosure	Exemption
The following paragraphs of IAS 1, 'Presentation of financial statements'	10(d) — statement of cash flows; 16 — statement of compliance with all IFRS; 38A — requirement for minimum of two primary statements, including cash flow statements; 38B-D — additional comparative information; 111 — statement of cash flow information; and 134 to136 — capital management disclosures.
IFRS 7, 'Financial Instruments: Disclosures'	Full exemption.
The following paragraphs of IFRS 13, 'Fair Value Measurement'	91 to 99 — disclosure of valuation techniques and inputs used for fair value measurement of assets and liabilities.
IAS 7, 'Statement of Cash Flows'	Full exemption.
The following paragraphs of IFRS 2, 'Share-based Payment'	45(b) and 46 to 52 — details of the number and weighted average exercise prices of share options, and the fair value of services received is determined.
The following paragraphs of IAS 8, 'Accounting policies, changes in accounting estimates and errors'	30 and 31 — requirement for the disclosure of information when an entity has not applied a new IFRS that has been issued but is not yet effective.
The following paragraphs of IAS 24, 'Related Party Disclosures'	17 — key management compensation; 18A — key management services provided by a separate management entity; and the requirements to disclose related party transactions entered into between two or more members of a group, provided that any subsidiary which is a party to the transaction is wholly owned by such a member.

New Accounting Pronouncements.

- IFRS 16 — 'Leases' introduced a single lessee accounting model and required a lessee to recognise assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is of low value. Refer to *Lease Accounting* policy below.
- IFRIC 23 'Uncertainty Over Income Tax Treatments' addresses the accounting for income taxes when there is uncertainty over tax treatments. It clarifies that an entity must consider the probability that the tax authorities will accept a treatment retained in its income tax filings, assuming that they have full knowledge of all relevant information when making their examination. In such a case, the income taxes shall be determined in line with the income tax filings. The Company adopted IFRIC 23 on 1 January 2019, and there was no impact to LivaNova PLC's financial statements as a result of this adoption.

Investments in Subsidiaries. Investments in subsidiaries are accounted for at cost less any provision for impairment. We assess at each reporting date, whether there is an indication that an investment may be impaired. If any indication exists, we estimate the investment's recoverable amount. Where the carrying amount of an investment exceeds its recoverable amount, the investment is considered impaired and is written down to its recoverable amount.

Foreign Currency. Our functional currency is the U.S. dollar; however, a portion of the revenues earned, and expenses incurred 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.

The euro is the functional currency of LivaNova PLC — Italian Branch, a subsidiary of LivaNova PLC, and the assets, liabilities and equity of this subsidiary 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 ("AOCI") on the Company balance sheet. Gains and losses arising from transactions denominated in a currency different from an entity's functional currency are included in foreign exchange

and other (losses) gains on our Company statement of (loss) income. 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.

The Euro exchange rate to the USD used in preparing the Company financial statements was as follows:

	Weighted Average Rate Euro	Closing Rate Euro
Year ended 31 December 2019	0.893318	0.891190
Year ended 31 December 2018	0.847229	0.874550

Financial Instruments. A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. Financial assets and financial liabilities are offset with the net amount reported in the Company balance sheet only if there is a current enforceable legal right to offset the recognised amounts and intent to settle on a net basis, or to realise the assets and settle the liabilities simultaneously.

(a) *Financial Assets*

Initial Recognition and Measurement. Financial assets are classified, at initial recognition, as financial assets at fair value through profit or loss, loans and receivables, investments, financial assets, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. The Company determines the classification of its financial assets at initial recognition. All financial assets are recognised initially at fair value plus, in the case of assets not at fair value through profit or loss, transaction costs that are attributable to the acquisition of the financial asset. Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the marketplace (regular way trades) are recognised on the trade date, i.e., the date on which the Company commits to purchase or sell the asset.

The subsequent measurement and impairment of financial assets depends on their classification as described below:

Financial Assets at Fair Value through Profit or Loss. Financial assets at fair value through profit or loss include financial assets held for trading and financial assets designated upon initial recognition at fair value through profit or loss. Financial assets are classified as held-for trading if they are acquired for the purpose of selling or re-purchasing in the near term. This category includes derivative financial instruments entered into by the Company that are not designated as hedging instruments in hedge relationships as defined by IFRS 9. 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 recognised in the Company statement of (loss) income, thereby offsetting the current net income (loss) effect of the related change in value of foreign currency denominated assets and liabilities. Changes in the fair value of our derivatives designated as hedges are recognised through other comprehensive income ("OCI").

Loans and Receivables. Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. After initial measurement, such financial assets are subsequently measured at amortised cost using the effective interest rate method, less impairment. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate ("EIR"). The EIR amortisation is included in finance income in the Company statement of (loss) income. The receivable balance consists primarily of trade receivables from our subsidiaries as a result of intercompany re-charges, services and management fees. We maintain an expected credit loss provision for expected credit losses based on our estimates of the ability of our subsidiaries and third-party customers to make required payments, historical credit experience, existing economic conditions and expected future trends. We write off uncollectable accounts against the provision when all reasonable collection efforts have been exhausted. Loans, together with the associated provision are written off when there is no realistic prospect of future recovery and all collateral has been realised or has been transferred to the Company. The losses arising from impairment are recognised in the Company statement of (loss) income in cost of sales or other operating expenses. Refer to "Note 7. Trade Receivables and Expected Credit Loss Provision" for further information.

Financial Asset Derecognition. A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is derecognised when:

- The rights to receive cash flows from the asset have expired, or
- The Company has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through arrangement, and either (a) the Company has transferred substantially all the risks and rewards of the asset, or (b) the Company has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

(b) *Financial Liabilities*

Initial Recognition and Measurement. Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings (bank debt), payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. All financial

liabilities are recognised initially at fair value and, in the case of loans, borrowings and payables, net of directly attributable transaction costs. The Company's financial liabilities include trade and other payables, loans and bank debt including bank overdrafts, and derivative financial instruments.

The measurement of financial liabilities depends on their classification, as follows:

Financial Liabilities at Fair Value through Profit or Loss. Financial liabilities at fair value through profit or loss include financial liabilities held-for-trading and financial liabilities designated upon initial recognition as at fair value through profit or loss. Financial liabilities are classified as held-for-trading if they are acquired for the purpose of selling in the near term. This category includes derivative financial instruments entered into by the Company that are not designated as hedging instruments in hedge relationships as defined by IAS 39, which the Company has elected to apply. Gains or losses on liabilities held-for-trading are recognised in the Company statement of (loss) income. Financial liabilities designated upon initial recognition at fair value through profit or loss are designated at the initial date of recognition, and only if the criteria in IAS 39 are satisfied. The Company has not designated any financial liabilities as at fair value through profit or loss.

Loans and Borrowings (bank debt). After initial recognition, interest bearing loans and borrowings are subsequently measured at amortised cost using the effective interest rate method. Gains and losses are recognised in the Company statement of (loss) income when the liabilities are de-recognised as well as through the EIR method amortisation process. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortisation is included in finance costs in the statement of (loss) income.

Financial Guarantee Contracts. Financial guarantee contracts issued by the Company are those contracts that require a payment to be made to reimburse the holder for a loss it incurs because the specified debtor fails to make a payment when due in accordance with the terms of a debt instrument. Financial guarantee contracts are recognised initially as a liability at fair value, and then adjusted for transaction costs that are directly attributable to the issuance of the guarantee. Subsequently, the liability is measured through profit or loss at the higher of the best estimate of the expenditure required to settle the present obligation at the reporting date and the amount recognised less cumulative amortisation.

Financial Liability Derecognition. A financial liability is de-recognised when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a de-recognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognised in the Company statement of (loss) income.

Derivative financial instruments and hedge accounting. We use currency exchange rate derivative contracts and interest rate derivative instruments, to manage the impact of currency exchange and interest rate changes on the Company statement of (loss) income and cash flows. Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently re-measured at fair value. The method of recognising the resulting gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. 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 the Company statement of (loss) income. Cash flows from derivative contracts are reported as operating activities in the consolidated statement of cash flows.

When a hedging instrument expires, sold or is terminated, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the Company statement of (loss) income. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately reclassified to profit or loss.

In order to minimise income statement 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 and of some revenue. At inception of the forward contract, the derivative is designated as either a freestanding derivative or a cash flow hedge. 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 and reclassified to the Company statement of (loss) income to offset exchange differences originated by the hedged item or to adjust the value of loss from continuing operations. We do not enter into currency exchange rate derivative contracts for speculative purposes.

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 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. The non-effective portion is reported in interest expense in the Company statement of (loss) income.

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. Cash equivalents are carried on the Company balance sheet at cost, which approximated their fair value.

Non-monetary Assets. Property, Plant and Equipment. PP&E is carried at cost, less accumulated depreciation and any accumulated impairment losses. Maintenance and repairs, and minor replacements are charged to expense as incurred, while significant renewals and improvements are capitalised.

We compute depreciation using the straight-line method over estimated useful lives. Where an item of PP&E comprises several parts with different useful lives, each part is recognised as a separate item and depreciated over its useful life. Useful life and residual value of PP&E are reviewed at each year-end. As necessary, the occurrence of changes to the useful life or residual value is recognised prospectively as a change in accounting estimates.

Leasehold improvements are depreciated over the shorter of the useful life of an asset or the lease term.

The estimated useful lives for all classes of depreciable PP&E, as of 31 December 2019 are as follows:

	Lives in Years
Leasehold improvements	up to 10
Equipment, furniture, fixtures	up to 7

Where there are any internal or external indications that the value of an item of PP&E may be impaired, the recoverable amount of the group of CGUs to which it belongs is calculated. If the recoverable amount is less than the carrying amount of the group of CGUs, a provision for impairment is recorded. PP&E is reviewed for impairment annually on 31st of December.

Impairment of Long-Lived Assets. The Company assesses at each reporting date whether there is an indication that an asset may be impaired. If any indication exists, or when annual impairment testing for an asset is required, the Company estimates the asset's recoverable amount. An asset's recoverable amount is the higher of an asset's CGU's fair value less costs of disposal and its value in use. It is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. Where the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount.

Revenue. Revenue largely consists of intercompany re-charges, services and management fees. Revenue is measured at the fair value of the consideration received or receivable. The Company recognises revenue when the amount of revenue can be reliably measured, it is probable that future economic benefits will flow to the entity and specific criteria have been met.

Lease Accounting. On 1 January 2019, we adopted IFRS 16, *Leases,* which replaced IAS 17, Leases, and introduces new or amended requirements with respect to lease accounting. It introduces significant changes to lessee accounting by removing the distinction between operating and finance lease and requiring the recognition of a right-of-use asset and lease liability at commencement for all leases with certain exceptions discussed below. We adopted the standard using the modified retrospective approach with an effective date of 1 January 2019. We recognised $7.7 million of ROU assets and $7.6 million of lease liabilities upon initial adoption on 1 January 2019. We have leases primarily for (i) real estate, including office space and manufacturing, warehouse and research and development facilities and (ii) vehicles. Prior year financial statements were not recast under the new standard. As a practical expedient, no reassessment was performed of contracts that were previously identified as leases and contracts that were not previously identified as containing a lease applying IAS 17 and IFRIC 4 — 'Determining whether an Arrangement contains a Lease.' At the adoption date, additional lease liabilities were recognised for leases previously classified as operating leases applying IAS 17. These lease liabilities were measured at the present value of the remaining lease payments and discounted using entity-specific incremental borrowing as discussed further below. In general, a corresponding right-of-use asset was recognised for an amount equal to each lease liability, adjusted by the amount of any prepaid or accrued lease payment relating to the specific lease contract, as recognised on the balance sheet at 31 December 2018. In addition, we elected the practical expedient to account for lease and non-lease components together as a single combined lease component, which is applicable to all asset classes. We did not, however, elect the practical expedient related to using hindsight in determining the lease term as this was not relevant following our election of the modified retrospective approach.

In addition, we elect certain practical expedients on an ongoing basis, including the practical expedient for short-term leases and leases of low-value assets pursuant to which a lessee is permitted to make an accounting policy election by class of underlying asset not to recognise a lease liability and lease asset. A short-term lease is defined as a lease with a term of 12 months or less and does not include an option to purchase the underlying asset that the lessee is reasonably certain to exercise. We have applied these accounting policies to all asset classes in our portfolio and will recognise the lease payments for such short-term leases and leases of low-value assets within profit and loss on a straight-line basis over the lease term.

The standard has no impact on the actual cash flows. However, the standard requires the capitalisation, and subsequent depreciation, of costs that were previously

expenses as paid, which impacts disclosures of cash flows within the cash flow statement. From 1 January 2019, the payments of leases representing the principal portion is classified as financing activities and the interest portion is classified in operating activities along with payments for short-term leases and leases of low-value assets.

Furthermore, from a lessor perspective, certain of our agreements that allow the customer to use, rather than purchase, our medical devices meet the criteria of being a lease in accordance with the new standard. While the amount of revenue and expenses recognised over the contract term will not be impacted, the timing of revenue and expense recognition will be impacted depending upon lease classification. We enacted appropriate changes to our business processes, systems and internal controls to support identification, recognition and disclosure of leases under the new standard.

We determine if an arrangement is or contains a lease at inception or when the terms and conditions of a contract are significantly changed. Right-of-use assets and lease liabilities are recognised based on the present value of the future minimum lease payments over the lease term at the latter of our lease standard effective date for adoption or the lease commencement date. Variable lease payments that do not depend on an index or rate, such as variable common area rent maintenance charges and utility fees not known upon lease commencement, are not included in determination of the minimum lease payments and will be expensed in the period in which the obligation for those payments is incurred. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement in determining the present value of future payments. The incremental borrowing rate represents an estimate of the interest rate we would incur at lease commencement to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset over the term of a lease within a particular currency environment. We used the incremental borrowing rate available nearest to our adoption date for leases that commenced prior to that date. The right-of-use lease asset also includes any lease payments made in advance and excludes lease incentives. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Right-of-use assets are depreciated over the shorter of the asset's useful life or the lease term on a straight-line basis. Lease payments are allocated between the liability and finance costs. Finance costs are recorded as an expense in the Company statement of (loss) income over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability.

For additional information refer to "Note 11. Leases."

Prior to the adoption of IFRS 16, *Leases*, on 1 January 2019, we accounted for leases that transfer substantially all risks and rewards incident 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 right-of-use assets and amortized, using the straight-line method, over the life of the lease. In addition, scheduled rent increases and rent holidays are recognised on a straight-line basis over the term of the lease.

Share-Based Compensation. We grant share-based incentive awards to directors, officers, key employees and consultants during each fiscal year. 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. The cost of equity-settled transactions is recognised in employee benefits expense, together with a corresponding increase in equity over the period in which the service and the performance conditions are fulfilled (the vesting period). The cumulative expense recognised for equity-settled transactions at each reporting date until the vesting date reflects the extent to which the vesting period has expired and the Company's best estimate of the number of equity instruments that will ultimately vest. We issue new shares upon stock option exercises, otherwise issuance of stock for vesting of restricted stock, restricted stock units or exercises of 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. The social security contributions on employee share-based payment awards are accrued over the service period.

The following share-based incentive awards are offered by the Company:

- ***Share Appreciation Rights.*** A SAR confers upon an employee the contractual right to receive an amount of cash, share, or a combination of both that equals the appreciation in the Company's common share 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 share. The SARs may be settled in LivaNova shares and/or cash, as determined by LivaNova and as set forth in the individual award agreements. 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 on historical volatility.
- ***Restricted Share and Restricted Share Units.*** We may grant RS and RSUs at no purchase cost to the grantee. The grantees of unvested RSUs have no voting rights or rights to dividends. Sale or transfer of the stock and stock units is restricted until they are vested. The fair market value of service-based RS and RSUs is 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. We have the right to elect to pay the cash value of vested restricted share units in lieu of the issuance of new shares. Under our share-based compensation plans we re-purchase a portion of these shares from our employees to permit our employees to meet their minimum statutory tax withholding requirements on vesting of their restricted share.

- *Market and Performance-Based Restricted Share and Performance-Based Restricted Share Units.* We may grant restricted share and restricted share units subject to market or performance conditions that vest based on the satisfaction of the conditions of the award. The fair market values of market condition-based awards are determined using the Monte Carlo simulation method. The Monte Carlo simulation method is subject to variability as several factors utilised must be estimated, including the derived service period, which is estimated based on our judgement of likely future performance and our share price volatility. The fair value of performance-based awards is determined using the market closing price on the grant date. Derived service periods and the periods charged with compensation expense for performance-based awards are estimated based on our judgement of likely future performance and may be adjusted in future periods depending on actual performance.

Income Taxes. The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case, the tax is also recognised in other comprehensive income or directly in equity, respectively.

The income tax expense or benefit for the year is the tax payable on the current year's taxable income based on the applicable income tax rate adjusted by changes in deferred tax assets and liabilities attributable to temporary differences and to unused tax losses.

The current income tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting year. Management establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred taxes are recognised by the liability method for temporary differences between the carrying amount of assets and liabilities in the balance sheet and their tax base. They are measured at the tax rates that are expected to apply to the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the balance sheet date. Adjustments to deferred taxes resulting from changes in tax rates are recognised in profit or loss. A deferred tax asset is recognised for all deductible temporary differences to the extent that it is probable that taxable profit will be available against which the deductible temporary difference can be utilized. At each year-end, the Company reviews the recoverable value of deferred tax assets of tax entities holding significant loss carryforwards. This value is based, by tax entity, on the strategy for recoverability of the tax loss carryforwards. Deferred taxes are charged or credited directly to equity when the tax relates to items that are recognised directly in equity, such as gains and losses on cash flow hedges and actuarial gains and losses on defined benefit plan obligations. Deferred tax assets and liabilities are set off when they are levied on the same taxable entity by the same taxation authority and the entity has a legally enforceable right of set off. Deferred taxes are recognised for all temporary differences associated with investments in subsidiaries and associates, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax balances are not discounted.

Equity. Ordinary Shares are classified as equity. Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Where any group company purchases the Company's equity instruments, for example as the result of a share buy-back or a share-based payment plan, the consideration paid, including any directly attributable incremental costs (net of income taxes) is deducted from equity attributable to the owners of LivaNova as treasury share until the shares are cancelled or reissued. Where such Ordinary Shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs and the related income tax effects, is included in equity attributable to the owners of LivaNova.

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 Company statement 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 judgement regarding future events.

Critical Estimates and Judgements. The preparation of our financial statements in conformity with FRS 101 requires management to make judgements that affect the amounts reported in such financial statements and accompanying notes. These estimates and judgements are based on management's best knowledge of current events and actions we may undertake in the future. Actual results could differ materially from those estimates. Application of the following accounting policies requires certain judgements and estimates that have the potential for the most significant impact on our financial statements:

- *Commitments and Contingencies.* Due to the fact that legal proceedings and other contingencies are inherently unpredictable, our assessments involve significant judgement regarding future events.
- *Taxes.* We prepare and file our tax returns based on an interpretation of tax laws and regulations and record estimates based on these judgements and interpretations. Critical accounting judgments and estimates include such items as the recording of valuation allowances for deferred tax assets and the determination of uncertain tax positions. Our tax returns are subject to examination by the competent taxing authorities, which may result in an assessment being

made requiring payments of additional tax, interest or penalties. See "Note 25. Income Taxes" and "Note 26. Commitments and Contingencies."

- *Exceptional Items.* Exceptional items are expense or income items which have been determined by management as being material by their size or incidence and are presented separately within the results of the Company. The determination of which items are disclosed as exceptional items will affect the presentation of profit measures and requires a degree of judgement. Details relating to exceptional items reported during the year are set out in "Note 19. Exceptional Items."
- *Impairment of Investments in Subsidiaries.* We performed impairment trigger assessments wherein we compared the net assets of our subsidiaries with their respective carrying values as of 31 December 2019. Where a trigger was identified, we performed impairment assessments utilizing the discounted cash flow models used in the assessment of our group CGUs for impairment. Refer to the consolidated financial statements "Note 11. Goodwill and Intangible Assets" under section "Impairment of Goodwill and Intangible Assets" for key assumptions.

Note 3. Property, Plant and Equipment

(in thousands)	Leasehold Improvements	Equipment, Furniture & Fixtures	Total
At 31 December 2018			
Gross amount	$ 1,398	$ 3,281	$ 4,679
Accumulated depreciation	(336)	(3,139)	(3,475)
Net amount	**$ 1,062**	**$ 142**	**$ 1,204**
At 31 December 2019			
Gross amount	$ 1,422	$ 3,241	$ 4,663
Accumulated depreciation	(466)	(3,154)	(3,620)
Net amount	**$ 956**	**$ 87**	**$ 1,043**

Changes during the year in the net amount of each category of property, plant and equipment are indicated below:

(in thousands)	Leasehold Improvements	Equipment, Furniture & Fixtures	Total
Net Amount at 31 December 2017	$ 971	$ 196	$ 1,167
Additions with currency translation	229	44	273
Depreciation	(138)	(98)	(236)
Net Amount at 31 December 2018	**1,062**	**142**	**1,204**
Additions with currency translation	28	20	48
Depreciation	(134)	(75)	(209)
Net Amount at 31 December 2019	**$ 956**	**$ 87**	**$ 1,043**

Note 4. Intangible Assets

(in thousands)	Patents	Licenses	Software and other	Total
At 31 December 2018				
Gross amount	$ 7,614	$ 1,298	$ 7,055	$ 15,967
Accumulated amortisation	(7,614)	(1,298)	(6,084)	(14,996)
Net amount	**$ –**	**$ –**	**$ 971**	**$ 971**
At 31 December 2019				
Gross amount	$ 7,472	$ 1,274	$ 9,876	$ 18,622
Accumulated amortisation	(7,472)	(1,274)	(6,357)	(15,103)
Net amount	**$ –**	**$ –**	**$ 3,519**	**$ 3,519**

The changes in the net carrying value of each class of intangible assets during the year are indicated below:

(in thousands)	Software and other
Net amount at 31 December 2017	$ 1,027
Additions with currency translation	422
Amortisation	(478)
Net Amount at 31 December 2018	**971**
Additions with currency translation	2,931
Amortisation	(383)
Net Amount at 31 December 2019	**$ 3,519**

Amortisation costs charged to the Company statement of (loss) income, within net operating expenses, totalled $0.4 million and $0.5 million for the years ended 31 December 2019 and 31 December 2018, respectively.

The amortisation periods for our finite-lived intangible assets as of 31 December 2019:

	Minimum Life in Years	Maximum Life in Years
Software and other	3	5

Note 5. Investments in Subsidiaries

(in thousands)	Cost
Net amount at 31 December 2017	$ 3,172,721
Additions	1,061,800
Sale of investment	(240,472)
Capital reimbursement	(936,620)
Currency translation	(28,252)
Net Amount at 31 December 2018	**3,029,177**
Additions	77
Capital reimbursement	(3,000)
Impairment	(150,078)
Other	1,255
Currency translation	(11,025)
Net Amount at 31 December 2019	**$ 2,866,406**

(in thousands)	31 December 2019	31 December 2018
Gross amount	$ 3,016,484	$ 3,029,177
Accumulated impairment	(150,078)	–
Net book value	**$ 2,866,406**	**$ 3,029,177**

At 31 December 2019, our investment in LivaNova Canada Corp had a carrying value of $73.7 million. The value in use models used for calculating fair value is most sensitive to the discount rate as well as the expected revenue growth rate and the terminal growth rate for extrapolation purposes. A decrease of 0.5% in the expected revenue growth rate and terminal growth rate within our value in use models used for calculating fair value would result in an impairment of approximately $6.0 million.

At 31 December 2019, the carrying value of our investment in Sorin Group Italia S.r.l. had a carrying value of $561.3 million. The value in use models used for calculating fair value is most sensitive to the discount rate as well as the expected revenue growth rate and the terminal growth rate for extrapolation purposes. A decrease of 0.5% in the expected revenue growth rate and terminal growth rate within our value in use models used for calculating fair value would result in an impairment of approximately $42.0 million.

During 2019, we impaired our investment in LIVN UK Holdco Limited by $150.1 million, which is shown in the table above and included in exceptional items in the Company statement of (loss) income. The impairment was due to a LIVN UK Holdco dividend that resulted in a distribution of reserves and a consequential reduction in the value of our investment.

During 2019, we reduced our investments in LIVN US 1 LLC, LIVN Luxco sarl and LivaNova Holding USA Inc. and increased our investment in LivaNova USA Inc., which resulted in a $3.0 million capital reimbursement shown in the table above.

We completed the sale of CRM on 30 April 2018. As a result of the sale we sold 100% of our interest in Sorin CRM SAS and we recorded a loss of $104.0 million as an exceptional item for the year ended 31 December 2018.

During the year ended 31 December 2018, LivaNova PLC acquired LivaNova Hungary Limited Liability Company and formed LivaNova Cayman Limited. These entities accounted for $1.0 billion of the additions shown in the table above.

During the year ended 31 December 2018, LivaNova PLC acquired an additional interest in Sorin Group Italia S.r.L. for $11.6 million. This amount is shown within additions in the table above.

During 2018, we restructured our investment in LIVN Irishco Unlimited Company resulting in the reduction of our investment by $1.0 billion. This amount is shown within capital reimbursement in the table above.

During the year ended 31 December 2018, the investment in Respicardia, Inc. was transferred from Sorin CRM SAS to LivaNova PLC associated with the sale of CRM.

The detail of investments in subsidiary undertakings as at 31 December 2019 is shown as follows (in thousands, except ownership percent):

	% Ownership[1]	31 December 2019	31 December 2018
- LIVN US 1 LLC	0.00	$ –	$ 147,330
- LIVN UK Holdco Limited	42.07	36,985	187,064
- LIVN Luxco sarl	100.00	–	3,000
- LIVN Irischo Unlimited Company	100.00	401	344
- LivaNova Canada Corp	100.00	73,733	73,703
- LivaNova Holding USA Inc.	0.00	–	886,268
- LivaNova USA Inc.	100.00	1,034,670	–
- LivaNova Nederland N.V.	100.00	61,333	61,287
- LivaNova Switzerland SA	100.00	6,315	6,313
- Cyberonics Nederland CV	99.00	23,153	23,149
- Cyberonics Holdings LLC	100.00	93	93
- LivaNova Cayman Limited	100.00	950,020	950,000
- LivaNova Hungary Limited Liability Company	100.00	100,202	100,202
- Sorin Group Italia S.r.l.	92.95	561,340	571,917
- LivaNova Site Management S.r.l.	86.42	18,161	18,507
		$ 2,866,406	**$ 3,029,177**

(1) The Company's voting right percentage is equal to its ownership percentage.

The Company had the following directly and indirectly owned subsidiaries as of 31 December 2019:

	Registered Office	Country of Incorporation	% Consolidated Group Ownership	Parent Name	Parent % Ownership
LivaNova PLC (Italian Branch)	Via Benigno Crespi 17 20159 Milan, Italy	Italy	100		
Caisson Interventional LLC	6500 Wedgwood Rd., Maple Grove, MN 55311	U.S.	100	LivaNova USA Inc.	100
CardiacAssist, Inc. Dba TandemLife	240 Alpha Drive, Pittsburgh, PA 15238	U.S.	100	LivaNova USA Inc.	100
Cyberonics Holdings LLC	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100	LivaNova PLC	100
Cyberonics Latam SRL	Edificio B49, 51 Ave O, Zona Franca Coyo, Coyo-Alajeuela, Costa Rica 20113	Costa Rica	100	Cyberonics Spain S.L.	100
CYBX Netherlands C.V.	100 Cyberonics Boulevard, Houston, TX 77058 USA	Netherlands	100	LivaNova PLC Cyberonics Holdings LLC	99 1
Cyberonics Spain SL	100 Cyberonics Boulevard, Houston, TX 77058 USA	Spain	100	CYBX Netherlands C.V.	100
ImThera Medical, Inc.	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100	LivaNova USA Inc.	100
LivaNova Australia PTY Limited	Tower 2, 123 St Georges Terrace Perth, WA 6000	Australia	100	LivaNova Nederland N.V.	100
LivaNova Austria GmbH	Millennium Tower, Handelskai 94-96, 1200 Wien	Austria	100	LivaNova Nederland N.V.	100
LivaNova Belgium NV	Ikaroslaan 83, 1930 Zaventem, Belgium	Belgium	100	LivaNova Nederland N.V.	100
LivaNova Brasil Comércio e Distribuição de Equipamentos Médico-hospitalares Ltda	Rua Liege, 54 — Vila Vermelha, 04298-070 — São Paulo — SP — Brasil	Brazil	100	Sorin Group Italia Srl	100
LivaNova Canada Corp.	280 Hillmount Road, Unit 8, Markham, ON L6C 3A1, Canada	Canada	100	LivaNova PLC	100
LivaNova Cayman Limited	Cannon Place, Grand Cayman, Cayman Islands	Cayman Islands	100	LivaNova PLC	100
LivaNova Chile SpA	Santiago, Chile	Chile	100	LivaNova UK Limited	100
LivaNova Colombia Sas	Avenida Calle 80 No. 69-70 Bodega 37, Bogotá, Colombia	Colombia	100	Sorin Group Italia S.r.l.	100
LivaNova Deutschland GmbH	Lindberghstrasse 25, D — 80939 München, Germany	Germany	100	Sorin Group Italia S.r.l.	100
LivaNova España, S.L.	Avenida Diagonal 123, planta 10, 08005, Barcelona, Spain	Spain	100	LivaNova Nederland N.V.	100
LivaNova Finland OY	c/o Kalliolaw Asianajotoimisto Oy, Södra kajen 12, 00130 Helsinki, Finland	Finland	100	Sorin Group Italia S.r.l.	100
LivaNova Holding S.r.l.	Via Benigno Crespi, 17 — 20159 Milano, Italy	Italy	100	Sorin Group Italia S.r.l.	100
LivaNova Hong Kong Limited	9/F, Wah Yuen Bldg, 149 Queen's Road, Central, Hong Kong, Hong Kong	Hong Kong	100	LivaNova Nederland N.V.	100

	Registered Office	Country of Incorporation	% Consolidated Group Ownership	Parent Name	Parent % Ownership
LivaNova Hungary Limited Liability Company	H-1062 Budapest, Váci út 1-3, A épület, 6. em.	Hungary	100	LivaNova PLC	100
LivaNova Inc.	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100	LivaNova USA Inc.	100
LivaNova India Private Limited	603-A, Copia Corporate Suites, Building #09, Jasola District Centre, New Delhi, India 110025	India	100	LivaNova Nederland N.V.	100
LivaNova IP Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100	LivaNova PLC	100
LivaNova Japan K.K.	11-1 Nagatacho 2 chome, Chiyoda-ku, Tokyo, 100-6110 Japan	Japan	100	LivaNova Nederland N.V.	100
LivaNova (Thailand) Ltd	4,4/5 Zen World Tower Level 12, Rajdamri Road, Pathumwan, Pathumwan, Bangkok, 10330, Thailand	Thailand	100	LivaNova Nederland N.V.	100
LivaNova (China) Medical Technology Co. Ltd	Room 3006, 30F, C Building, SML Centre, No. 610 Xujiahui Road, Huangpu District, Shanghai, 200025, China	China	100	LivaNova Holding Srl S.r.l.	100
LivaNova Malaysia Sdn. Bhd.	Level 10, Meara LGB 1Jalan Wan Kadir Taman Tun Dr. Ismail 60000, Kuala Lumpur, Malaysia	Malaysia	100	LivaNova Nederland N.V.	100
LivaNova Nederland N.V.	Westerdoksdijk 423, 1013 BX, Amsterdam, Netherlands	Netherlands	100	LivaNova PLC	100
LivaNova Norway AS	c/o AmestoAccounthouse AS, Smeltedigelen 1, 0195 Oslo, Norway	Norway	100	Sorin Group Italia S.r.l.	100
LivaNova Poland Sp. Z o.o.	Park Postepu Bud A Ul. Postepu 21 PL-02 676 Warszawa, Poland	Poland	100	LivaNova Nederland N.V.	100
LivaNova SAS	200 Avenue de Paris, Châtillon, 92320, France	France	100	LivaNova Nederland N.V.	100
LivaNova Scandinavia AB	Djupdalsvägen 16, 192 51 Sollentuna, Sweden	Sweden	100	Sorin Group Italia S.r.l.	100
LivaNova Singapore Pte Ltd	The Adelphi, 1 Coleman Street, #10-07, Singapore 179803	Singapore	100	LivaNova Nederland N.V.	100
LivaNova Site Management S.r.l.	Via Benigno Crespi 17 20159 Milan, Italy	Italy	100	LivaNova PLC Sorin Group Italia S.r.l.	86 14
LivaNova Switzerland SA	Rue du Grand-Pont 12, 1003 Lausanne	Switzerland	100	LivaNova PLC	100
LivaNova Taiwan Co. Ltd	2F., No. 101, Songren Rd., Xinyi Dist., Taipei City, 11073, Taiwan (R.O.C.)	Taiwan	100	LivaNova Nederland N.V.	100
LivaNova Turkey Medikal Limited Sirketi	Nart E-office, Pol Center Ecza Sok. No.4 Levent Istanbul	Turkey	100	LivaNova Nederland N.V.	100

	Registered Office	Country of Incorporation	% Consolidated Group Ownership	Parent Name	Parent % Ownership
LivaNova UK Limited	1370 Montpellier Court, Gloucester Business Park, Gloucester, Gloucestershire, GL3 4AH, United Kingdom	United Kingdom	100	LivaNova Nederland N.V.	100
LivaNova USA Inc.	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100	LivaNova PLC	100
LIVN Irishco 2 UC	Deloitte, 6 Lapps Quay, Cork, T12 TA48, Ireland	Ireland	100	LIVN UK Holdco Limited	100
LIVN Irishco Unlimited Company	Deloitte, 6 Lapps Quay, Cork, T12 TA48, Ireland	Ireland	100	LivaNova PLC	100
LIVN Luxco 2 sarl	15 Rue Edward Steichen L-2540 Luxembourg	Luxembourg	100	LIVN UK Holdco Limited	100
LIVN UK 2 Co Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100	LIVN US 5, LLC	100
LIVN UK 3 Co Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100	LIVN US, LP	100
LIVN UK Holdco Limited	20 Eastbourne Terrace, London, England W2 6LG, United Kingdom	United Kingdom	100	LivaNova PLC LIVN UK 2 Co Limited LivaNova UK Limited	42 51 7
LIVN US 3, LLC	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100	LivaNova USA Inc.	100
LIVN US 5, LLC	100 Cyberonics Boulevard, Houston, TX 77058 USA	U.S.	100	LIVN US 3, LLC	100
LIVN US LP	14401 West 65th Way, Arvada, CO 80004	U.S.	100	LivaNova USA Inc. LIVN US 3, LLC	83 17
Sorin Group Czech Republic s.r.o	Na poriçi 1079/3a Nové Mesto Praha 110 00 Praha 1, Czech Republic	Czech Republic	100	Sorin Group Italia S.r.l.	100
Sorin Group Italia S.r.l.	Via Benigno Crespi, 17 — 20159 Milano, Italy	Italy	100	LivaNova PLC LivaNova Site Management S.r.l.	93 7
Sorin Group Rus LLC	Marshal Proshlyakov str. 30 office 304 123458 Moscow, Russia	Russia	100	Sorin Group Italia S.r.l.	100

(1) As of 31 December 2019, the following subsidiaries were in liquidation: LIVN UK 3 Co Limited, LIVN Irishco Unlimited Company and Cyberonics Latam SRL.

Note 6. Financial Assets

The table below lists our non-current financial assets, including our investment in the equity instruments of Respicardia Inc. ("Respicardia"). Respicardia, a privately funded U.S. company, acquired in connection with the sale of CRM from Sorin CRM SAS during the year ended 31 December 2018 is held at cost, which we believe it is an appropriate estimate of fair value unless more recent information is available sufficient to measure fair value (in thousands):

(in thousands)	31 December 2019	31 December 2018
Due in more than 12 months:		
Note due from subsidiary	$ 87,811	$ –

(in thousands)	31 December 2019	31 December 2018
Respicardia [1]	17,706	17,706
	$ 105,517	**$ 17,706**

Our current financial assets in the balance sheet include the following:

(in thousands)	31 December 2019	31 December 2018
Due in less than 12 months		
Due from subsidiaries	$ 213,286	$ 347,989
Due from Respicardia Inc.	642	597
Prepaid bank fees	469	–
	$ 214,397	**$ 348,586**

Note 7. Trade Receivables and Expected Credit Loss Provision

Trade receivables consisted of the following:

(in thousands)	31 December 2019	31 December 2018
Trade receivables due from third parties	$ 266	$ 263
Trade receivables due from LivaNova subsidiaries [1]	6,374	1,193
Expected credit loss provision	(266)	(264)
Total	**$ 6,374**	**$ 1,192**

(1) Trade receivables due from subsidiaries are paid within 90 days and no interest is charged.

Trade receivables are reported net of the expected credit loss provision, the changes in which are provided below:

(in thousands)	31 December 2019	31 December 2018
Beginning of year	$ 264	$ 276
Additions	8	–
Currency translation gains/losses	(6)	(12)
End of year	**$ 266**	**$ 264**

Note 8. Derivative Financial Instruments

We enter into foreign currency exchange rate ("FX") derivative contracts and interest rate swap contracts to reduce the impact of foreign currency exchange rate and interest rate fluctuations on earnings and cash flow, for additional details refer to our accounting policy "Derivatives" included within "Note 2. Basis of Preparation, Use of Accounting Estimates and Significant Accounting Policies."

Freestanding FX Derivative Contracts

The gross notional amount of FX derivative contracts, not designated as hedging instruments, outstanding at 31 December 2019 and 31 December 2018 was $338.0 million and $320.2 million, respectively. These derivative contracts are designed to offset the FX effects in earnings of various intercompany loans, our 2014 EIB loan, the Euro-denominated borrowings under the 2019 Debt Facility and trade receivables.

The amount and location of the gains (losses) in the Company statement of (loss) income related to derivative instruments, not designated as hedging instruments, are as follows (in thousands):

Derivatives Not Designated as Hedging Instruments	Location	Year Ended 31 December 2019	Year Ended 31 December 2018
Foreign currency exchange rate contracts	Foreign exchange and other gains (losses)	$ 3,061	$ (11,211)

Cash Flow Hedges

Interest Rate Swaps

The Company has a long-term loan from an EIB that bears floating-rate interest rate. To minimise the impact of changes in interest rates on its interest payments under the EIB loan, we entered into interest rate swap agreements. The interest rate swap agreements were designated as a cash flow hedge of the variability of interest payments under the EIB long-term loan agreement due to changes in the floating interest rates by converting from Euribor 3 months floating-rate to a fixed-rate loan. The interest rate swap agreements mature in June 2026 and have periodic interest settlements. The outstanding notional amounts at 31 December 2019 and 31 December 2018 were $22.4 million and $38.1 million, respectively. After-tax net loss for swaps recorded in the ending balance of accumulated other comprehensive income and the amount expected to be reclassified to earnings in the next 12 months are $86 thousand and $57 thousand, respectively.

Presentation in Financial Statements

The amount of gains (losses) and location of the gains (losses) in the Company statement of (loss) income and accumulated OCI related to interest rate swap derivative instruments designated as cash flow hedges are as follows (in thousands):

	Year Ended 31 December 2019		
	Gross Gains Recognised in OCI on Effective Portion of Derivative	Effective Portion of Gains (Losses) on Derivative Reclassified from:	
Derivatives in Cash Flow Hedging Relationships	**Amount**	**Location**	**Amount**
Interest rate swap contracts	$ –	Interest expense	$ (92)

	Year Ended 31 December 2018		
	Gross Gains Recognised in OCI on Effective Portion of Derivative	Effective Portion of Gains (Losses) on Derivative Reclassified from:	
Derivatives in Cash Flow Hedging Relationships	**Amount**	**Location**	**Amount**
Interest rate swap contracts	$ –	Interest expense	$ (66)

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

31 December 2019	Asset Derivatives		Liability Derivatives	
Derivatives Designated as Hedging Instruments	**Balance Sheet Location**	**Fair Value**	**Balance Sheet Location**	**Fair Value**
Interest rate swap contracts			Current financial derivative liabilities	$ 313
Interest rate swap contracts			Non-current financial derivative liabilities	61
Total derivatives designated as hedging instruments				**374**
Derivatives Not Designated as Hedging Instruments				
FX derivative contracts	Current financial derivative assets	$ 383	Current financial derivative liabilities	3,273
FX derivative contracts	Current financial derivative liabilities	413	Current financial derivative assets	33
Total derivatives not designated as hedging instruments		796		3,306
Total derivatives		**$ 796**		**$ 3,680**

31 December 2018	Asset Derivatives		Liability Derivatives	
Derivatives Designated as Hedging Instruments	**Balance Sheet Location**	**Fair Value**	**Balance Sheet Location**	**Fair Value**
Interest rate swap contracts			Current financial derivative liabilities	$ 536
Interest rate swap contracts			Non-current financial derivative liabilities	329
Total derivatives designated as hedging instruments				**865**
Derivatives Not Designated as Hedging Instruments				
FX derivative contracts	Current financial derivative assets	$ 237	Current financial derivative liabilities	4,758
Total derivatives not designated as hedging instruments		237		4,758
Total derivatives		**$ 237**		**$ 5,623**

Note 9. Equity

Share capital

Our authorised share capital is as follows:

(in number of shares)	31 December 2019	31 December 2018
Authorised share capital, ordinary shares of £1 each, unlimited shares authorised		
Issued [(1)]	49,411,016	49,323,418
Outstanding	48,443,830	48,205,783

(1) Allotted, fully paid and issued.

Share Repurchase Plans

On 1 August 2016, the Board of Directors of LivaNova PLC approved the authorization of a share repurchase plan (the "Share Repurchase Program") pursuant to an authority granted by shareholders at the 2016 annual general meeting held on 15 June 2016. The Share Repurchase Program was structured to enable us to buy back up to $150.0 million of our shares on NASDAQ between 1 September 2016 through 31 December 2016. On 15 November 2016, the Board of Directors approved an amendment (the "Amended Share Repurchase Program") to the Share Repurchase Program. The Amended Share Repurchase Program authorised the Company to repurchase up to $150.0 million of our shares between 1 September 2016 and 31 December 2018. As of 31 December 2018, we repurchased 1,493,672 shares under this plan at a cost of $100 million for an average price of $66.95. All repurchased shares were canceled and are no longer considered issued or outstanding. No shares may be repurchased under the Share Repurchase Program or the Amended Share Repurchase Program after 31 December 2018.

Treasury Stock

For the year ended 31 December 2018, we issued 1.4 million shares to our Employee Benefit Trust ("EBT"). Shares held by the EBT are issued to employees and directors at exercise of stock-based compensation grants. The balance of shares in the EBT are reported as treasury shares. We did not issue any additional shares to our EBT during the year ended 31 December 2019.

Reserves

Merger relief reserve. On 19 October 2015 pursuant to the Mergers, the merger relief reserve was recognised in the amount of $2,649.6 million as a result of the share exchange transaction of the Sorin and Cyberonics mergers with and into the Company. During the year ended 31 December 2016, the Company capitalised $2,583.1 million of the reserves in order to create distributable reserves in the accounts the Company. The reserves may be used for any corporate purpose of the Company for which realized profits are required. Further information relating to the Mergers is detailed in "Note 1. Nature of Operations".

Accumulated Other Comprehensive Income (Loss)

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 (loss) into net earnings:

(in thousands)	Change in unrealised gain (loss) on derivatives	Foreign currency translation adjustments	Revaluation of net liability (asset) for defined benefits	Total
Ending Balance — 31 December 2017	$ (207)	$ 37,308	$ (16)	$ 37,085
Reclassification of (loss) gain from accumulated other comprehensive income, before tax	–	(22,936)	(3)	(22,939)
Tax effect	–	–	1	1
Reclassification of loss from accumulated other comprehensive income, after tax	–	(22,936)	(2)	(22,938)
Reclassification of gain (loss) from accumulated other comprehensive income, before tax	66	–	–	66
Ending Balance — Tax effect	(16)	–	–	(16)
Ending Balance — Reclassification of gain from accumulated other comprehensive income, after tax	50	–	–	50
Ending Balance — Net other comprehensive income (loss), net of tax	50	(22,936)	(2)	(22,888)
Ending Balance — 31 December 2018	(157)	14,372	(18)	14,197
Reclassification of (loss) gain from accumulated other comprehensive income, before tax	–	(8,732)	(16)	(8,748)
Tax effect	–	–	3	3
Reclassification of loss from accumulated other comprehensive income, after tax	–	(8,732)	(13)	(8,745)
Reclassification of gain (loss) from accumulated other comprehensive income, before tax	92	–	–	92
Tax effect	(21)	–	–	(21)
Reclassification of gain from accumulated other comprehensive income, after tax	71	–	–	71
Net other comprehensive income (loss), net of tax	**71**	**(8,732)**	**(13)**	**(8,674)**
Ending Balance — 31 December 2019	**$ (86)**	**$ 5,640**	**$ (31)**	**$ 5,523**

Note 10. Financial Liabilities

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

	Principal Amount at 31 December 2019	Principal Amount at 31 December 2018	Maturity	Effective Interest Rate in 2019
2019 Debt Facility [(1)]	$ 184,275	$ –	March 2022	1.40% — 3.56%
2017 European Investment Bank [(2)]	103,570	103,570	June 2026	3.31% — 3.37%
2014 European Investment Bank [(3)]	28,053	47,606	June 2021	1.01%
Loans payable to LivaNova subsidiaries	85,239	111,013		
Total long-term facilities	**401,137**	**262,189**		
Less current portion of long-term debt	(71,722)	(19,035)		
Total long-term debt	**$ 329,415**	**$ 243,154**		

(1) The facility agreement with Bank of America Merrill Lynch International DAC, Barclays Bank PLC, BNP Paribas (London Branch) and Intesa Sanpaolo S.P.A. provides a multi-currency term loan facility in an aggregate amount of $350 million and terminates on 26 March 2022 (the "2019 Debt Facility"). Principal repayments of 20% of the outstanding borrowings under the 2019 Debt Facility are due in September 2020, March 2021 and September 2021, with the remainder of the outstanding borrowings due in March 2022.

(2) The 2017 European Investment Bank ("2017 EIB") loan was obtained to support certain product development projects. The interest rate for the 2017 EIB loan is reset by the lender each quarter based on LIBOR. Interest payments are paid quarterly, and principal payments are paid semi-annually.

(3) The 2014 European Investment Bank ("2014 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.

The 2019 debt facility is subject to various terms and conditions:

- certain financial ratios calculated based on the LivaNova PLC and Subsidiaries consolidated financial statements,

such as maintaining a maximum net debt to EBITDA ratio, a minimum interest coverage ratio, a maximum net debt to net worth ratio and a minimum amount of net worth.
- the 2019 debt facility also contains customary representations and warranties, covenants, and events of default.

The EIB loans are subject to various terms and conditions:
- certain financial ratios calculated based on the LivaNova PLC and Subsidiaries consolidated financial statements;
- subordination clauses, based on which the loan cannot be subordinated to other loans, with the exception of loans given preference deriving from legal obligations
- negative pledge clauses that place limits on the issue of collateral;
- other customary clauses for loans of this type, including limits on LivaNova's consolidated asset disposals.

The outstanding principal amount of current debt consisted of the following (in thousands):

	Principal Amount at 31 December 2019	Principal Amount at 31 December 2018
Loans payable to LivaNova subsidiaries	$ 262,182	$ 530,326
Short-term facilities	73	77
Total short-term facilities	**262,255**	**530,403**
Current portion of long-term debt	71,722	19,035
Total current debt	**$ 333,977**	**$ 549,438**

LivaNova PLC, in the management of LivaNova centralized treasury and acting as in-house bank of the Group, receives excess cash from subsidiaries which generate cash.

Interest expense. Interest expense of $18.1 million, refer to the Company statement of (loss) income, consists primarily of interest on our debt facilities.

Note 11. Leases

We have leases primarily for (i) real estate, including office space and manufacturing, warehouse and research and development facilities and (ii) vehicles. Our leases have remaining lease terms up to 6 years, some of which include options to extend the leases, and some of which include options to terminate the leases at our sole discretion.

Reconciliation of Lease Commitment and Lease Liability

The following table presents the reconciliation of total operating lease commitments disclosed in the Company financial statements for the year ended 31 December 2018 and the lease liabilities recognised at 1 January 2019 on adoption of IFRS 16 (in thousands).

Operating lease commitments disclosed at 31 December 2018	$ 6,752
Add: Impact of practical expedient to account for lease and non-lease components as a single combined lease component	1,160
Undiscounted lease liability	7,912
Discounting (weighted average incremental borrowing rate of 1.6%)	(362)
Lease liabilities recognised on adoption of IFRS 16 at 1 January 2019	**$ 7,550**

Right-of-Use Assets and Lease Liabilities

The movement in the right-of-use assets and lease liabilities since adoption by class of assets is as follows (in thousands):

	Real Estate	Vehicles	Right-of-Use Assets	Lease Liabilities
Balance as of 1 January 2019	$ 7,612	$ 64	$ 7,676	$ 7,550
Additions	–	181	181	181
Depreciation expense	(1,564)	(77)	(1,641)	–
Interest expense	–	–	–	109
Lease payments	–	–	–	(1,739)
Currency translation adjustments	85	1	86	82
Balance as of 31 December 2019	**$ 6,133**	**$ 169**	**$ 6,302**	**$ 6,183**

Contractual maturities of our lease liabilities as of 31 December 2019 are as follows (in thousands):

2020	$	1,722
2021		1,392
2022		1,101
2023		725
2024		744
Thereafter		763
Total lease payments		6,447
Less: Amount representing finance charges		(264)
Net present value of lease liabilities	**$**	**6,183**

Lease Payments not Recognised as a Liability

We have elected not to recognise a lease liability for short- term leases (leases with an expected term of 12 months or less) or for leases of low value assets. Payments made under such leases are expensed on a straight-line basis. In addition, certain variable lease payments are not permitted to be recognised as lease liabilities and are expensed as incurred. Expenses recognised during 2019 relating to payments not included in the measurement of lease liabilities is as follows (in thousands):

Short-term leases	$	18
Lease of low value		18
Variable lease payments		76
	$	**112**

Lease payments of approximately $1.7 million were made during the year ended 31 December 2019 in connection with lease agreements of which $1.6 million represents the principal portion classified in financing activities and $0.1 million for interest classified in operating activities.

Note 12. Other Payables

(in thousands)	31 December 2019	31 December 2018
CRM purchase price adjustments payable to MicroPort Scientific Corporation	$ 14,891	$ 14,891
Other accrued expenses	4,839	1,095
Accrued expenses- employee-related charges	2,886	7,934
Other amounts due to health and social security institution	886	517
Other liabilities	361	1,312
Other current liabilities with subsidiaries	140	3,005
Amounts due to employees	97	85
Total	**$ 24,100**	**$ 28,839**

Note 13. Share-Based Incentive Plans

Share-Based Incentive Plans

On 16 October 2015, we approved the adoption of the Company's 2015 Incentive Award Plan (the "2015 Plan") , which was previously approved by the Board of Directors of the Company on 14 September 2015 subject to such shareholder approval. The 2015 Plan was adopted in order to facilitate the grant of cash and equity incentives to non-employee directors and employees (including our named executive officers) of the Company and certain of our affiliates and to enable the Company and certain of our affiliates to obtain and retain services of these individuals. The Plan became effective as of 19 October 2015. Stock-based awards may be granted under the 2015 Plan in the form of stock options, SARs, RS, RSUs and other stock-based awards. As of 31 December 2019, there were approximately 4,904,000 shares available for future grants under the 2015 Plan.

Share Options and Share Appreciation Rights

	Year Ended 31 December 2019		Year Ended 31 December 2018	
Options and SARs	**Number of Optioned Shares**	**Wtd. Avg. Exercise Price**	**Number of Optioned Shares**	**Wtd. Avg. Exercise Price**
Exercised	8,652	$ 62.91	288,892	$ 62.02
Outstanding — end of year	693,813	$ 69.99	721,068	$ 64.48

The weighted average remaining contractual life for the share options and SARs outstanding at 31 December 2019 and 31 December 2018 was 6.4 years and 7.1 years, respectively.

The aggregate intrinsic value of the options and SARs outstanding at 31 December 2019 and 31 December 2018 was $8.5 million and $19.6 million. respectively. The aggregate intrinsic value of options and SARs is based on the fair market value of the underlying share at the end of the year using the difference between the market closing share price, and exercise price for in-the-money awards.

The range of exercise prices for options and SARs outstanding at year end are categorised in exercise price ranges as follows:

Outstanding Options	**31 December 2019**	**31 December 2018**
$41-50	136,021	136,021
$51-60	192,560	298,631
$61-70	91,004	91,004
$71-80	11,050	9,934
$81-90	122,946	177,190
$91-100	135,521	–
$101-110	3,500	6,848
$121-130	1,211	1,440
Total	**693,813**	**721,068**

Restricted Share and Restricted Share Units Awards

The following tables detail the activity for service-based restricted share and restricted share unit awards:

	Year Ended 31 December 2019		Year Ended 31 December 2018	
	Number of Shares	**Wtd. Avg. Grant Date Fair Value**	**Number of Shares**	**Wtd. Avg. Grant Date Fair Value**
Non-vested at end of year	163,344	$ 78.47	209,856	$ 70.34

(in thousands)	**Year Ended 31 December 2019**	**Year Ended 31 December 2018**
Aggregate fair value of service-based share grants that vested during the year (in thousands)	$ 5,082	$ 4,053

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

	Year Ended 31 December 2019		Year Ended 31 December 2018	
	Number of Shares	**Wtd. Avg. Grant Date Fair Value**	**Number of Shares**	**Wtd. Avg. Grant Date Fair Value**
Non-vested at end of year	175,211	$ 75.39	169,215	$ 55.39

(in thousands)	**Year Ended 31 December 2019**	**Year Ended 31 December 2018**
Aggregate fair value of performance-based share grants that vested during the year	$ 795	$ 1,256

Note 14. Income Tax Benefit

Income tax benefit consists of the following:

(in thousands)	Year Ended 31 December 2019	Year Ended 31 December 2018
Current tax		
United Kingdom	$ 8,821	$ 5,370
Non-United Kingdom	(594)	(440)
	8,227	**4,930**
Deferred tax		
United Kingdom	11,701	6,258
Non-United Kingdom	78	168
	11,779	6,426
	$ 20,006	**$ 11,356**

The following is a reconciliation of the statutory income tax rate to our effective income tax rate expressed as a percentage of income before income tax benefits:

	Year Ended 31 December 2019	Year Ended 31 December 2018
Statutory tax rate at U.K. rate	19.0%	19.0%
Change in tax rate [(1)]	(1.5)	(1.0)
Permanent differences	(1.0)	(1.5)
Italian branch tax rate differential	–	0.1
Distribution of subsidiary earnings	43.4	7.1
Change in uncertain tax positions	1.7	–
Tax on UK CFC interest	5.7	(1.9)
Impairment	(41.3)	(14.4)
Equity compensation	1.6	–
Other, net	1.3	1.0
Effective tax rate	**28.9%**	**8.4%**

(1) The change in tax rate is primarily due to net operating losses generated during 2019 net of group relief being remeasured to a tax rate 17% from 19%. The 17% rate is the legally enacted rate for the majority of 2020 and forward.

Deferred income tax assets and liabilities are summarised as follows:

		Activity During the Year Ended 31 December 2019		
(in thousands)	31 December 2019	Company Statement of (Loss) Income	Shareholders' Equity	31 December 2018
Net operating loss carryforwards	$ 20,582	$ 9,438	$ –	$ 11,144
Accruals and reserves	59	(1)	–	60
Share-based compensation	3,729	2,183	(2,132)	3,678
Lease assets and other	1,710	1,350	(29)	389
Total deferred tax assets	**26,080**	**12,970**	**(2,161)**	**15,271**
Lease liabilities and other	1,183	1,183	–	–
Total deferred tax liabilities	**1,183**	**1,183**	**–**	**–**
Total deferred tax assets, net	**$ 24,897**	**$ 11,787**	**$ (2,161)**	**$ 15,271**

Deferred tax assets have not been recognised with respect of the following items:

(in thousands)	31 December 2019	31 December 2018
Tax loss carryforwards (tax effected)	$ 10,531	$ 10,950

Deferred tax assets primarily include operating loss carryforwards. For losses incurred after April 2017 in the UK, we anticipate utilizing these operating loss carryforwards in 2024 and 2025 as we expect an increase in taxable income due to the full amortisation of certain assets. The losses from the last two years are mainly driven by exceptional items and are not expected to continue. We have concluded the operating loss carryforwards will be recoverable based on estimated future taxable income. The Company will be able to recover its tax loss through UK Group relief, as the UK Group will realize an increase of taxable income as a result of increased revenues from royalty income and decreased amortisation of intangible assets.

In the Spring Budget 2020, the UK Government announced that from 1 April 2020 the corporation tax rate would remain at 19% (rather than reducing to 17%, as previously enacted). This new law was substantively enacted on 17 March 2020. As the proposal to keep the rate at 19% had not been substantively enacted at the balance sheet date, its effects are not included in these financial statements. However, it is likely that the overall effect of the change, had it been substantively enacted by the balance sheet date, would be to increase the tax benefit for the period by $2.7 million and increase the deferred tax asset by $2.7 million. In addition to deferred tax items in the United Kingdom measured at 17%, there are Italian deferred tax items measured at 24%.

Uncertain Tax Positions

Tax authorities may disagree with certain positions we have taken and assess additional taxes. We regularly assess the likely outcome 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 Company statement of (loss) income, financial position or cash flows. As of 31 December 2018, we had UK uncertain tax positions, including penalty and interest, of $1.2 million. This uncertain tax position was released as of 31 December 2019.

Note 15. Commitments and Contingencies

Refer to “Note 26. Commitments and Contingencies” of the LivaNova consolidated financial statements in this 2019 Annual Report.

Note 16. Related Parties

Interests in subsidiaries are set out in “Note 5. Investments in Subsidiaries.” Receivables from subsidiaries are set out in “Note 6. Financial Assets.” Refer to the consolidated financial statements “Note 29. Related Parties” for key management personnel and related parties. Refer to consolidated financial statements “Note 13. Financial Assets” for related party financial assets.

Note 17. Company Statement of (Loss) Income — Expenses by Nature

(in thousands)	Year Ended 31 December 2019	Year Ended 31 December 2018
Revenue	$ 17,773	$ 18,947
Cost of materials and services used	(44,436)	(54,885)
Personnel expense	(35,121)	(36,582)
Amortisation, depreciation, impairments and loss on disposal of CRM	(152,286)	(104,700)
Interest expense	(18,063)	(14,195)
Income from subsidiary undertakings	158,090	50,202
Interest income	6,178	10,934
Foreign exchange and other losses	(1,424)	(4,841)
Loss before taxes	(69,289)	(135,120)
Income tax benefit	20,006	11,356
Loss for the year	**$ (49,283)**	**$ (123,764)**

Note 18. Employee and Key Management Compensation Costs

Details of Directors' remuneration are included in the Directors' remuneration report on pages 42 to 56, which forms part of these financial statements.

Employee numbers

The average monthly employee numbers on a full-time equivalent basis, including executive directors were 68 and 56 for the years ended 31 December 2019 and 31 December 2018. Our employees are principally engaged in Corporate activities.

Note 19. Exceptional Items

The following exceptional items are included within operating loss (in thousands):

(in thousands)	Year Ended 31 December 2019	Year Ended 31 December 2018
Investment write-down	$ 150,078	$ –
Merger and integration expenses	5,536	13,851
Restructuring expenses	3,099	793
Loss on sale of Sorin CRM SAS	–	103,986
	$ 158,713	**$ 118,630**

Investment write-down. During 2019, we impaired our investment in LIVN UK Holdco Limited by $150.1 million, which is shown in the table above and included in exceptional items in the Company statement of (loss) income. The impairment was due to a LIVN UK Holdco Limited dividend that resulted in a distribution of reserves and a consequential reduction in the value of our investment.

Merger and integration Expenses. Merger and integration expenses consist of costs associated with our merger and business combinations. Such costs primarily include computer systems integration efforts, organizational structure integration, synergy and tax planning. While merger and integration costs continue into fiscal year 2020, we expect these costs to decline over time. Refer to "Note 7. Business Combinations" of the LivaNova consolidated financial statements in this 2019 Annual Report for more details.

Restructuring Expenses. We have initiated several restructuring plans to leverage economies of scale, streamline distribution and logistics and strengthen operational and administrative effectiveness in order to reduce overall costs. We identify costs incurred and liabilities assumed for the restructuring plans. Refer to "Note 9. Restructuring" of the LivaNova consolidated financial statements in this 2019 Annual Report for more details.

CRM Investment Loss on Sale and Impairment. During the year ended 31 December 2018, we recorded $104.0 million of loss on sale of our investment in the Sorin CRM SAS subsidiary. Refer to "Note 5. Investments in Subsidiaries" for further details.

Note 20. Auditors' Remuneration

(in thousands)	Year Ended 31 December 2019	Year Ended 31 December 2018
LivaNova auditors		
Fees payable to the Company's auditors and its associates for the audit of parent company financial statements	$ 74	$ 70

Note 21. Subsequent events

Refer to "Note 35. Subsequent Events" to the Consolidated Group financial statements in this 2019 Annual Report.

In March 2020, we finalised the working capital adjustment associated with the sale of CRM to MicroPort Cardiac Rhythm B.V. and MicroPort Scientific Corporation ("MicroPort"). As a result, we made a $16.4 million payment to MicroPort during the first quarter of 2020.

In response to the risks posed by COVID-19, the Company entered into amendments that modified the maximum

consolidated net debt to EBITDA and the interest coverage ratio covenants in its debt agreements for the remainder of 2020.

The Consolidated Group conditions may impact the Company's ability to recover amounts due from subsidiaries and the value of the Company's investments in its subsidiaries. As discussed in the Consolidated Group "Note 35. Subsequent Events," the Consolidated Group has been and may continue to be impacted negatively by the COVID-19 pandemic. From a carrying value assessment perspective, the impact of COVID-19 has been treated as a non-adjusting event on the basis that government actions in response to the pandemic, which had a direct impact on LivaNova's business, were not announced until after the balance sheet date.

A decline in future cash flows could result in an impairment to the $2,866.4 million investment in our subsidiaries, refer to "Note 5. Investments in Subsidiaries," and to the $301.1 million of amounts due from subsidiaries, refer to "Note 6. Financial Assets." It is too early to determine, what if any permanent diminution in value has occurred as a result of the impact of COVID-19, and this will be assessed during 2020 as part of the annual carrying value assessment exercise when more certainty regarding demand for our products and the availability of hospital spaces for elective surgeries is known.

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