Novo Nordisk Annual Report 2019

ROSHNI
Roshni has type 1 diabetes and lives in India

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Roshni lives in India, and loves her school. She is 12 years old and wants to become a doctor.

Roshni was diagnosed with type 1 diabetes at the age of four. The first few months were tough. It was hard to get the blood sugar levels right. Then she was referred to a hospital and enrolled in Novo Nordisk's Changing Diabetes in Children programme, which offers free insulin, help on managing diabetes and support for her and her family.

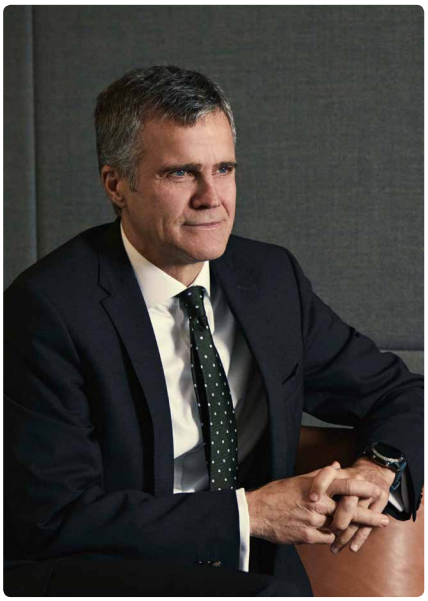
The patient portrayed in this Annual Report have participated of her own accord and solely to express her personal opinions on topics referred to, which do not necessarily reflect the views and opinions of Novo Nordisk. Use of her pictures as illustrations is in no way intended to associate them with the promotion of any Novo Nordisk products.

All references can be found in 'More information'.
The Management review, as defined by the Danish Financial Statements Act, is found on pp 1-40 and pp 88-91.
This Annual Report is Novo Nordisk's full statutory Annual Report 2019. Please read further details in 'More information'.

Letter from the Chair

Making good progress

Novo Nordisk made good progress during 2019. Our teams have delivered growth and crucial new product launches. This has established a good platform for the next decade and beyond as we continue to build our pipeline and make progress as a sustainable business.



→ Our strategy is working. Although the challenges facing Novo Nordisk are not going away – indeed, many problems such as intensified competition, healthcare affordability and the need to bolster R&D are more urgent than ever – we have put in place the building-blocks for responding to these and other challenges. The Board of Directors is confident that Novo Nordisk is well positioned to deliver on its purpose of defeating diabetes and other serious chronic diseases and, by doing so, achieve profitable growth.

Last year, we laid out our plans to reprioritise resources towards key growth areas, streamline operations and redefine our research and development strategy. I am pleased to say that these changes are now bearing fruit, as evidenced by an acceleration of sales in International Operations, a return to growth in our Biopharm business, and a reinvigorated pipeline with great potential to offer treatment for unmet medical needs.

We recognise that relying solely on in-house research capabilities will not be enough to sustain success, and we are therefore opening our business to strategic partnerships. Novo Nordisk's market strength and deep expertise in metabolic diseases makes the company an attractive partner for innovative biotech companies. This has allowed us to build partnerships to bring on-board promising new technologies.

As a large company, Novo Nordisk also has large responsibilities. Society is expecting more from business to help solve challenges such as bending the curve on diabetes, climate change and environmental degradation. I believe Novo Nordisk, with its purpose and commitment to pursuing a more sustainable development, is well placed to rise to the challenge.

The pharmaceutical industry faces an important societal challenge: how can we continue to innovate and improve health outcomes while at the same time ensuring that as many people as possible have access to our products at an affordable price? This issue has been discussed at every board meeting I have chaired. I believe our initiatives for enhancing access to care represent real progress towards resolving this dilemma. And so do the major prevention programmes targeting obesity and diabetes.

The decisions taken by companies like ours will help shape the future of societies for generations to come, whether that means bending the curve of the global diabetes epidemic or eliminating our environmental footprint, another area of priority for Novo Nordisk.

Over the past year, I have visited our offices in many parts of the world. I have met people on the front line of operations who have told me how working for a company committed to improving healthcare and promoting sustainability motivates them.

The insights from these meetings, and the discussions I have had with patients and our investors, have brought external perspectives into the boardroom. The lesson I take away is simple: purpose comes first, profit is an outcome. A clear purpose and ambition to add value to society beyond financial results helps attract the top talent, thereby fuelling innovation and making Novo Nordisk a more sustainable company.

In the course of 2019, two long-tenured colleagues, Jesper Brandgaard, executive vice president of Biopharm & Global Legal & Patents, and Lars Green, executive vice president of Business Services & Compliance, both left Novo Nordisk to pursue their careers elsewhere. I want to thank them both for the legacy they leave and commend them for their dedication and leadership and for the achievements they made on behalf of Novo Nordisk.

New members were brought on board from outside of Novo Nordisk. Ludovic Helfgott joined in April 2019 as executive vice president and head of Biopharm. Monique Carter, who joined Novo Nordisk in November 2018, was promoted in August 2019 to executive vice president of People & Organisation.

On behalf of the Board, I would like to offer my thanks to all Novo Nordisk's employees for their hard work and commitment during 2019; to Lars Fruergaard Jørgensen and his team for their inspiring leadership and to our shareholders for their continued support. •

Helge Lund
Chair of the Board of Directors

Letter from the CEO

Setting new strategic aspirations

Our purpose is to drive change to defeat diabetes and other serious chronic diseases. That is a long-term commitment, and we are pursuing it relentlessly. We build on our innovation expertise and our therapy focus combined with commercial excellence to provide benefits to the millions of patients who rely on our products. When we do that well, we will be a sustainable business that adds value to society and delivers profitable growth.

→ As we enter a new decade, Novo Nordisk stands strong. We delivered a very solid financial result for 2019 reflecting an accelerated growth in International Operations and the contribution from the launch of Ozempic® particularly in North America Operations.

Three milestones stand out: in the US, we secured a major scientific achievement with the regulatory approval of Rybelsus®, the world's first and only GLP-1 medicine in a tablet, and early feedback indicates promising prospects. In January 2020, Ozempic®, a once-weekly injectable GLP-1, was approved in the US for cardiovascular risk reduction in people with type 2 diabetes and established cardiovascular disease. Ozempic® is now available in 26 countries and achieved blockbuster status within 18 months.

We have introduced strategic aspirations in four categories with medium-term goals to provide direction towards 2025: purpose and sustainability; innovation and therapeutic focus; commercial execution; and financials. I invite you to also look at our company's performance from this holistic perspective, because that is how we manage the business. These aspirations replace our long-term financial targets. We hold ourselves accountable for progress towards each and all of them, and in the following pages we elaborate on the new aspirations.

Our key contribution is to discover and develop innovative biological medicines and make them accessible to patients all over the world. Today, we have best-in-class products in all the therapy areas in which we are active, and at the end of 2019 our sales and marketing teams have delivered no fewer than 87 successful launches, delivering innovative treatments to people living with diabetes, obesity, haemophilia and growth hormone disorders. We are accelerating growth in International Operations where we now aspire to grow annual sales by 6-10% until 2025 from a historical level of 5-6%. Meanwhile, we are transforming our US business, and it is our ambition that by 2022 around 70% of our sales will come from new products. It is also encouraging to note that our Biopharm business has proven robust in the face of disruptive competition and has grown in both the haemophilia and growth hormone disorder product segments.

One of the greatest opportunities for Novo Nordisk is undoubtedly obesity care, where there are huge unmet needs. We have already established a leading position in this field and expect to build on the success of Saxenda®, which is now available in 46 countries. In 2020 we will see the results of our pivotal clinical programme, STEP, which evaluates the benefits of injectable semaglutide for the treatment of obesity.

Our contribution to global health relies on our ability to develop radically new treatments and solutions and we are well positioned to do this. We have raised the innovation-bar and are bolstering our pipeline, making significant advances in R&D productivity by harnessing digital technologies to accelerate development of new product candidates. We believe we have what it takes to potentially even disrupt how diabetes is treated. To complement our in-house capabilities to develop novel therapies we partner with leading biotech companies like bluebird bio and Dicerna.

All of these accomplishments demonstrate how we are indeed driving change to benefit patients and delivering convincing results. Results that are →

reflected in strong financial performance and achievement of our long-term financial targets.

But in a world where serious chronic diseases not only have a significant impact on individuals' quality of life, but also hamper socio-economic development and put a strain on healthcare budgets, it takes more than medicines. We consider it our responsibility to help tackle these challenges. That is what we mean by driving change.

We are stepping up our efforts to ensure broader access to our medicines for those who need them, regardless of their circumstances. Ensuring affordability of medicines is a high priority for us, and we have expanded our affordable insulin offerings in the US, where our offerings provide a solid safety net for uninsured patients, and in low- and middle-income countries, where healthcare systems are inadequate.

We are working with partners across the globe to advance disease prevention through education and on-the-ground interventions. Our Cities Changing Diabetes programme now involves 25 cities. In 2019, we entered a partnership with UNICEF to develop interventions that can help prevent childhood overweight and obesity worldwide, with an initial focus on Latin America and the Caribbean. And through our partnership with the International Red Cross, we are providing essential insulin to thousands of people who are affected by humanitarian crises.

During 2019, we launched an ambitious new environmental strategy, Circular for Zero, which will take us towards our ultimate ambition, namely to ensure zero environmental impact from our activities. As of this year, our entire global production sources renewable power and the next major milestone in sight is to eliminate CO_2 entirely from all operations and transport by 2030.

With the Novo Nordisk Way as our guide, we will continue to evolve our culture. To be successful we must set ambitious goals, and we must work in a simple and agile way and nurture an inclusive workplace that enables everyone to realise their potential.

We aim to be a truly sustainable business – environmentally, socially and financially. From the very beginning, this is how we have built our business, sticking with the Novo Nordisk Way. I am confident that we have a solid formula for delivering on our purpose, contributing to global sustainable development and sustaining commercial success. Let me close by thanking everyone at Novo Nordisk for all their great work and their commitment to our shared purpose. A special thanks to our Board of Directors for their decisive stewardship, constructive challenges and unwavering confidence. I also want to thank our shareholders and all our other stakeholders for their continued support. •

Lars Fruergaard Jørgensen
President & chief executive officer

Strategic aspirations for 2025

Purpose and sustainability

- Being respected for adding value to society
- Progress towards zero environmental impact
- Ensure distinct core capabilities and evolve culture

Innovation and therapeutic focus

- Further raise the innovation-bar for diabetes treatment
- Develop a leading portfolio of superior treatment solutions for obesity
- Strengthen and progress the Biopharm pipeline
- Establish presence in Other serious chronic diseases focusing on cardiovascular disease, non-alcoholic steatohepatitis and chronic kidney disease

Commercial execution

- Strengthen Diabetes care leadership – aim at a global value market share of more than 1/3
- Strengthen Obesity care leadership and double current sales[1]
- Secure a sustained growth outlook for Biopharm

Financials

- Deliver solid sales and operating profit growth
  - Deliver 6–10% sales growth in International Operations
  - Transform 70% of sales in the USA[2]
- Drive operational efficiencies across the value chain to enable investments in future growth assets
- Deliver free cash flow to enable attractive capital allocation to shareholders

1. Based on 2019 sales **2.** From 2015 to 2022

Novo Nordisk at a glance

Novo Nordisk is a global healthcare company, headquartered in Denmark. Our key contribution is to discover and develop innovative biological medicines and make them accessible to patients throughout the world.

We aim to lead in all disease areas in which we are active.

463
million people live with diabetes[1]

650
million people live with obesity[2]

1.1
million people live with Haemophilia[3]

1.8-2.9
in every 10,000 children is born with growth hormone deficiency[4]

43,258 employees world wide

80 countries with affiliates or offices

169 countries with marketed products

3 continents with research and development facilities

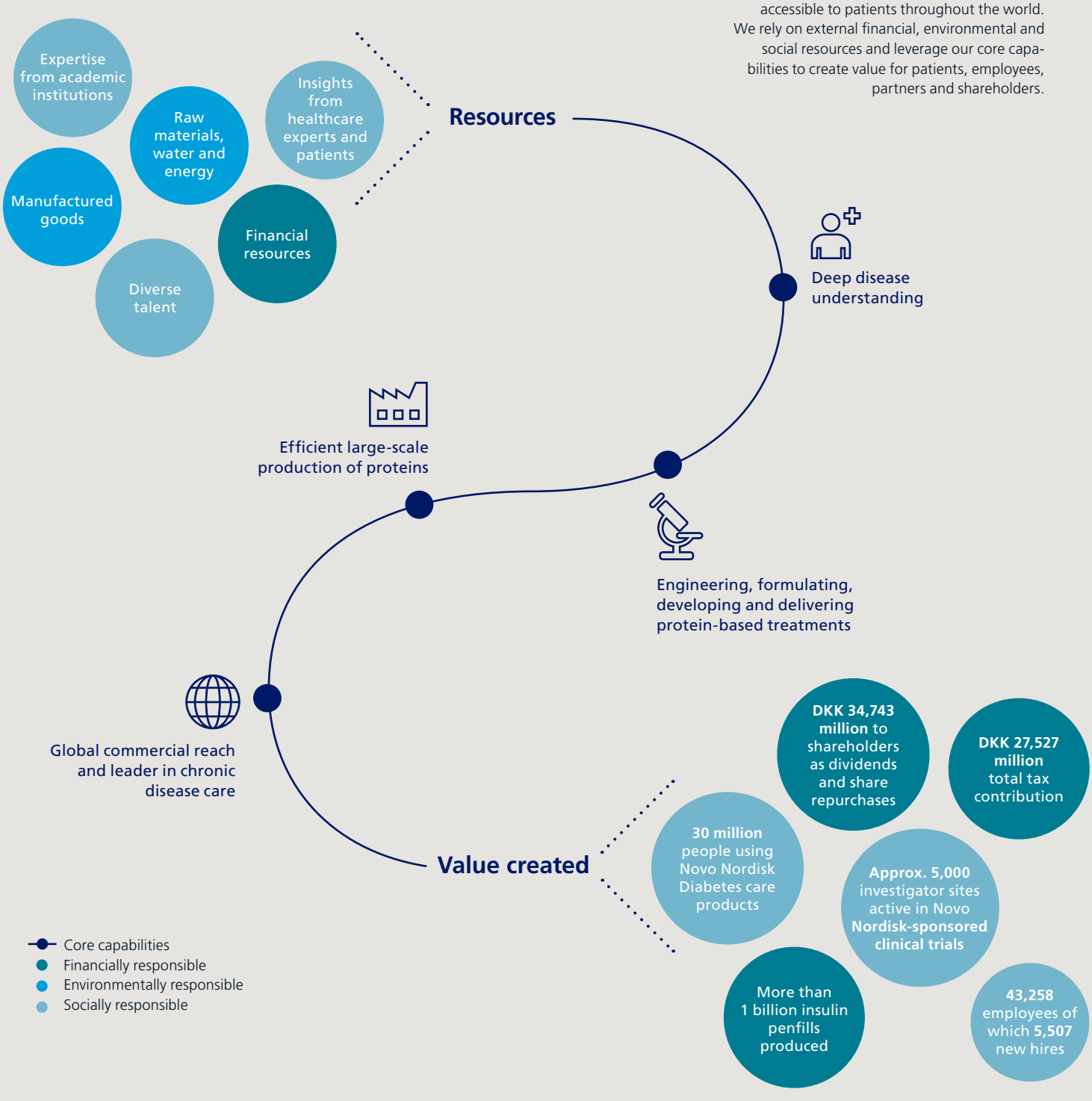
Our corporate strategy

Adding value to society

The company's Articles of Association spell out the obligation to do business in a financially, environmentally and socially responsible way. This approach is applied to ensure that business decisions are better informed, always keeping in mind the best interests of the patients we serve and with an aim to create value for all stakeholders.

Our business model

Our key contribution is to discover and develop innovative biological medicines and make them accessible to patients throughout the world. We rely on external financial, environmental and social resources and leverage our core capabilities to create value for patients, employees, partners and shareholders.



Performance highlights

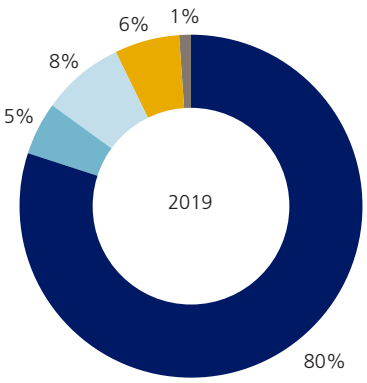
DKK million	2015	2016	2017	2018	**2019**	2018–2019
Financial performance						Change
Net sales	107,927	111,780	111,696	111,831	122,021	9%
Sales growth in constant exchange rates[1]	8.4%	5.5%	2.3%	4.6%	5.6%	
Net sales growth as reported	21.5%	3.6%	(0.1%)	0.1%	9.1%	
Operating profit	49,444	48,432	48,967	47,248	52,483	11%
Net financials	(5,961)	(634)	(287)	367	(3,930)	
Profit before income taxes	43,483	47,798	48,680	47,615	48,553	2%
Net profit for the year	34,860	37,925	38,130	38,628	38,951	1%
Total assets	91,799	97,539	102,355	110,769	125,612	13%
Equity	46,969	45,269	49,815	51,839	57,593	11%
Purchase of property, plant and equipment[1]	5,224	7,068	7,626	9,636	8,932	(7%)
Free cash flow[1]	34,222	39,991	32,588	32,536	34,451	6%
Financial ratios[1]						
Percentage of sales:						
Gross margin	85.0%	84.6%	84.2%	84.2%	83.5%	
Operating margin	45.8%	43.3%	43.8%	42.2%	43.0%	
Net profit margin	32.3%	33.9%	34.1%	34.5%	31.9%	
Sales and distribution costs	26.2%	25.4%	25.4%	26.3%	26.1%	
Research and development costs	12.6%	13.0%	12.5%	13.2%	11.7%	
Administrative costs	3.6%	3.5%	3.4%	3.5%	3.3%	
Equity ratio	51.2%	46.4%	48.7%	46.8%	45.8%	
Return on equity	79.9%	82.2%	80.2%	76.0%	71.2%	
Cash to earnings	98.2%	105.4%	85.5%	84.2%	88.4%	
Payout ratio	46.6%	50.2%	50.4%	50.6%	50.5%	
Long-term financial targets[1]						Target
Operating profit growth	43.3%	(2.0%)	1.1%	(3.5%)	11.1%	5%
Operating profit growth adjusted[2]	35.2%	3.9%	1.1%	(3.5%)	11.1%	
Operating profit growth in constant exchange rates adjusted[2]	12.7%	6.2%	4.8%	2.8%	5.6%	
Operating profit after tax to net operating assets	148.7%	150.2%	143.2%	116.7%	98.0%	80%
Cash to earnings (three-year average)	96.8%	102.4%	96.4%	91.7%	86.0%	85%

The Group has applied IFRS 16 'Leases' for the first time on 1 January 2019. Amounts for 2015-2018 have not been restated. Please refer to note 1.2.

1. See 'Financial definitions'. **2.** Years 2015 and 2016, adjusted for DKK 2,376 million from the partial divestment of associated company and DKK 449 million from the income related to the out-licensing of assets for inflammatory disorders respectively.

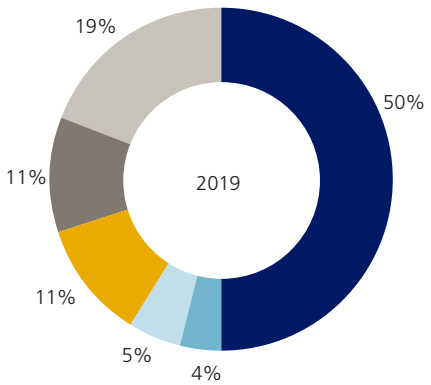
Sales by therapeutic area

Diabetes care | Obesity care | Haemophilia | Growth disorders | Other Biopharm



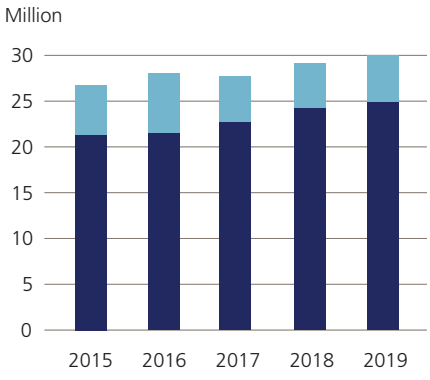
Sales by geographic area

Region Europe | Region AAMEO | Region China | Region Japan & Korea | Region Latin America | North America Operations



Patients reached with diabetes care products (estimate)

Ceiling price* | Regular pricing



* Patients reached with insulin below ceiling price of USD 4.00/vial of human insulin.

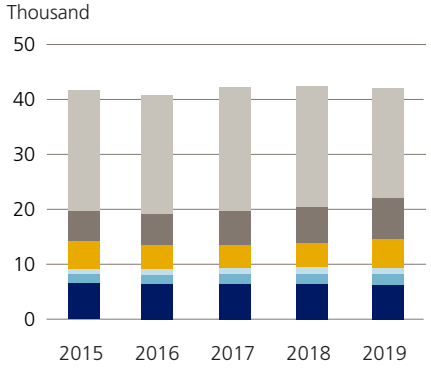
Performance highlights

	2015	2016	2017	2018	**2019**	2018–2019
Social performance						Change
Patients reached with Novo Nordisk's diabetes care products (estimate in millions)	26.8	28.0	27.7	29.2	30.0	3%
Patients reached with Novo Nordisk's diabetes care products via the Access to Insulin Commitment (estimate in millions)	—	—	0.3	0.3	2.9 [3]	—
Employees (total)	41,122	42,446	42,682	43,202	43,258	0%
Employee turnover	9.2%	9.7%	11.0%	11.7%	11.4%	
Gender in management (ratio men:women)	59:41	59:41	60:40	60:40	60:40	
Relevant employees trained in business ethics	98%	99%	99%	99%	99%	
Product recalls	2	6	6	3	4	33%
Failed inspections	0	0	0	0	0	
Long-term social targets						Target
Employee engagement	—	—	90%	91%	91%	≥ 90
Company trust (scale 0–100)	—	—	82.2	84.5	78.2	≥ 80
Environmental performance						Change
Water consumption for production sites (1,000 m^3)	3,131	3,293	3,276	3,101	3,149	2%
Waste from production sites (1,000 tons)	159	153	157	142	124	(13%)
Long-term environmental targets						Target
Share of renewable power for production sites	78%	78%	79%	77%	76%	100% by 2020
CO_2 emissions from operations and transportation (1,000 tons)	—	—	—	278	306	0 by 2030
Share performance						Change
Basic earnings per share/ADR in DKK [1]	13.56	14.99	15.42	15.96	16.41	3%
Diluted earnings per share/ADR in DKK [1]	13.52	14.96	15.39	15.93	16.38	3%
Total number of shares (million), 31 December	2,600	2,550	2,500	2,450	2,400	(2%)
Dividend per share in DKK	6.40	7.60	7.85	8.15	8.35 [4]	2%
Total dividend (DKK million)	16,230	19,048	19,206	19,547	19,651 [4]	1%
Share repurchases (DKK million)	17,229	15,057	16,845	15,567	15,334	(1%)
Closing share price (DKK)	399.90	254.70	334.50	297.90	386.65	30%

1. See 'Financial definitions'. **3.** Scope of Access to Insulin Commitment expanded in 2019 to also include middle-income countries and selected organisations providing humanitarian relief. **4.** Total dividend for the year including interim dividend of DKK 3.00 per share, which was paid in August 2019. The remaining DKK 5.35 per share, corresponding to DKK 12.551 million, will be paid subject to approval at the Annual General Meeting.

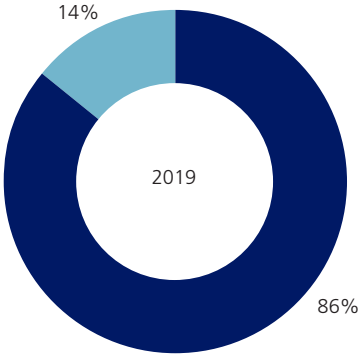
Employees (total)

Region Europe, Region AAMEO, Region China, Region Japan & Korea, Region Latin America, North America Operations



Water consumption

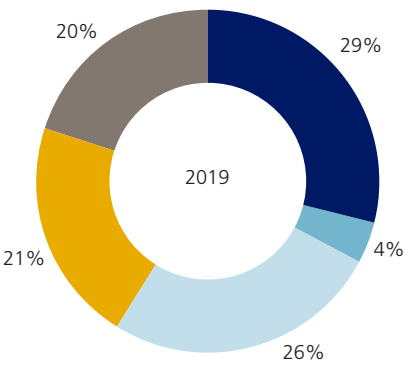
Locations with high water stress or large seasonal variations*, Other locations



* As defined by the World Resource Institute

CO_2 emissions from operations and transportation

Company cars, Business flights, Product distribution, Office buildings and laboratories, Production



Purpose and sustainability:

Leading a sustainable business

Strategic aspirations for 2025

Purpose and sustainability

- Being respected for adding value to society
- Progress towards zero environmental impact
- Ensure distinct core capabilities and evolve culture

Our business is built on a commitment to drive change to defeat diabetes and other serious chronic diseases. We do so by pioneering scientific breakthroughs and expanding access to our medicines. But we do not stop at that. We are also working to prevent, and ultimately cure, these diseases. We have a legacy in diabetes of almost a century, and over the years we have expanded into other serious chronic diseases.

⟶ There will not be resources to provide for adequate chronic care for all who need it. In the public debate strong voices are questioning our business model and current practices for intellectual property rights, putting pressure on the price of essential medicines, and expecting us to take more responsibility for solving the problems caused by the pandemic growth of chronic diseases as well as other global issues. We want to be part of the solution, and we are stepping up to that challenge.

We envisage a future in which markets and governments will punish companies that are seen to cause harm to people, communities or the environment through their products or operations, and reward those that account transparently for their impacts and benefit society. Our aspiration is to be respected for adding value to society.

We take leadership in the concerted efforts to achieve good health and well being for all. We have also committed to take action in the face of climate change, with a bold ambition to leave zero environmental footprint from our business activities. Our strategy is informed by the global goals for sustainable development towards 2030 set by world leaders in 2015. We can help deliver on these goals.

Preventing the rise in diabetes and obesity

In a world strained by the impact of diabetes, we have a responsibility to respond to the societal challenge. The burden of diabetes, fuelled by increasing rates of overweight and obesity, is rising in every part of the world despite long-running, collective efforts to fight the pandemic and its devastating impact on people and societies. To defeat diabetes, we need a new level of commitment. Prevention of diabetes and obesity is systematically underfunded and there are few, if any effective models that adequately address inequality in health. We want to find, pilot and scale effective ways to prevent people at risk from developing diabetes and obesity.

In support of the Sustainable Development Goals, we are working with partners across the globe to advance disease prevention through education and on-the-ground interventions. Our Cities Changing Diabetes programme has become a social movement in its own right, mobilising multiple stakeholders in the effort to tackle the growing issues of urban diabetes and build healthier environments. By now we have 25 partner cities.

In 2019, we entered a partnership with UNICEF to develop interventions that can help prevent childhood overweight and obesity worldwide, with an initial focus on Latin America and the Caribbean. Through this partnership we will combine efforts to enhance knowledge and awareness and address root causes. The aim is three-fold. We want to enhance knowledge among decision-makers on successful policies to prevent childhood overweight and obesity in middle-income countries. We will build awareness of the impact of overweight and obesity on children and their rights and advocate for the need to make systemic changes to address this growing epidemic. And finally, we will drive and strengthen multi-sector interventions.

With the right medical treatment and care, people with serious chronic diseases can live a life free of complications and be fully productive citizens. But as long as there is a significant gap between those who achieve good health and those who do not, the situation is unsustainable and will impact our ability to be successful for the long-term.

We are stepping up our efforts to provide broader access to our medicines for those who need them. We will actively be part of ensuring that more people are given access to diagnosis and that Novo Nordisk medicines are available and affordable, and we will continue to develop new and innovative treatments to further improve health outcomes for patients. Meanwhile, we will also support prevention by building capacity in health systems and societies. When we succeed at all this, it will ultimately lead to better health and thereby help contain the vast societal and financial burden arising from chronic diseases.

Access to affordable care for vulnerable populations

Novo Nordisk operates in 169 countries with vastly different levels of income and →

health systems. As a global healthcare company, we know that different approaches are needed to ensure that the most vulnerable people receive the care they need. For this reason, Novo Nordisk has put in place a number of initiatives aimed at ensuring that vulnerable groups have access to affordable medicines and care, including:

- Through our Access to Insulin Commitment we have set a ceiling price of USD 4 for a 10 ml vial of Human Insulin offered to governments in low- and middle-income countries and to humanitarian organisations.
- Through the Changing Diabetes® in Children programme we provide insulin free of charge to children with type 1 diabetes and build capacity in the world's poorest countries. In 2019, we enrolled 2,819 additional children. In total 15,121 health care professionals have been trained, 208 clinics established and 25,695 children across 14 countries have received care as part of the programme since 2009.
- We work to strengthen capacity to diagnose and treat people affected by humanitarian crises through Partnering for Change with the International Committee of the Red Cross and the Danish Red Cross.
- Through the World Diabetes Foundation, we support large-scale diabetes capacity building in low-resource settings and through the Defeat NCD partnership we support a new multi-sector effort to improve global access to care for non-communicable diseases.

In September 2019, the United Nations adopted the Political Declaration on Universal Health Coverage in support of the Sustainable Development Goals. In Novo Nordisk we welcome this effort to find sustainable solutions and we will continue to expand our own efforts to provide access to our products and strengthen capacity to diagnose and treat diabetes throughout the world.

Affordable insulin in the US

Ensuring affordability of medicines within the complex US healthcare system continues to be a high priority. This year, we met face-to-face with some of our most vocal critics in the insulin pricing debate – including patients and physicians – to improve our understanding of the affordability challenges that patients are facing. And we are continuing to launch initiatives to help more people with diabetes access affordable medicine – including those with insurance and those without – as we continue to support a longer-term, systemic reform.

New insulin affordability offers, effective as of January 2020, include:

- A Cash Card Program, offering that for USD 99, people with diabetes can get up to three vials or two packs of FlexPen®/FlexTouch®/PenFill® pens of any combination of Novo Nordisk Inc. insulins.
- NovoLog® and NovoLog® Mix follow-on brands are made available in vials and pens at a 50 percent list price reduction from the newly established Novo Nordisk Pharma Inc.
- An immediate, one-time insulin supply option available for people facing an acute need when more time is needed to identify a sustainable solution.

These new options build upon our existing offers:

- The Patient Assistance Program, which we have offered since 2003. This provides free medicines, including all Novo Nordisk insulin medications, to eligible patients. Families of four with an annual income up to USD 103,000 can get free medications through our Patient Assistance Program (USD 49,960 for individuals).
- We have made Novo Nordisk human insulin available at Walmart for about USD 25/vial for the past 15 years, and recently expanded it to other national pharmacy chains.
- Our Co-pay Savings Cards help spread the costs of commercially insured patients with high out-of-pocket costs.

Pursuing zero environmental impact

Our long-standing climate action efforts are paying off. We expect to meet our target of using only renewable power in our production by 2020. The final stretch was the result of a new investment in a 2.7 square kilometre solar panel installation in North Carolina, USA, which will make power supplies for our entire US production carbon-free from early 2020.

Our next ambitious target is to achieve zero CO_2 emissions from all operations and transport by 2030. This target is part of our 'Circular for Zero' environmental strategy, which ultimately aims for zero environmental impact from our business. We focus on three key areas:

- Circular supply: we will collaborate proactively with suppliers to embed circular thinking for reduced environmental impact across our value chain and switch towards circular sourcing and procurement.
- Circular company: we aim to eliminate environmental footprint from Novo Nordisk operations and drive a circular transition across the company aspiring for zero environmental impact.
- Circular products: we will upgrade existing and design new products based on circular principles and solve the end-of-life product waste challenge to close the resource loop.

Sustainable business approach

As a business with global reach, we are defining our role in contributing to an environment, society and economy that enables all people, and our business, to thrive. Our ambition is to be a sustainable business that adds value to society. By that we mean staying in business – because millions of people rely on us – and contributing to the achievement of global sustainable development.

In our approach, we adhere to international standards, including the UN Guiding Principles on Business and Human Rights, voluntary commitments such as the UN Global Compact Ten Principles and the recommendations of the Task Force on Climate-related Financial Disclosures. We also diligently adhere to compliance requirements such as the US Foreign Corrupt Practices Act, the UK Bribery Act and the UK Modern Slavery Act.

And throughout, we seek to integrate sustainability in all our operations. For example, environmental considerations are included in the project manual for development of new products, ensuring that decisions are informed by life cycle assessments of environmental impacts.

So how will we know when we are doing enough – throughout our value chain? We are changing the way we manage, track and report on progress to be a sustainable business. Taking our point of departure in what science and international standards have defined to be necessary in a global context, we follow a robust approach to identify current state and required actions through a focused, long-term effort. →

novo nordisk way

Guided by the Novo Nordisk Way
We build our business on a principled approach to always doing business in a financially, environmentally and socially responsible way, which is firmly anchored in the Articles of Association. This commitment is reflected in the Novo Nordisk Way, and guides how we lead a sustainable business. When we make decisions, we always keep in mind what is best in the long term for the patients we serve, our employees, the communities in which we are present and the global society we are part of. This way we seek to attend to the interests of stakeholders as well as the long-term interests of our shareholders. The goal is to avoid any negative impacts, and maximise the positive impacts we can make through our business activities.

We use a unique and systematic approach called facilitation to make sure everyone lives up to the Novo Nordisk Way. It comprehensively assesses how managers and employees demonstrate our desired behaviours, our ten 'Essentials'. These assessments are conducted by experienced in-house experts with a broad knowledge of the business. Any issues are addressed locally, and consolidated insights are shared with Executive Management and the Board of Directors.

The Novo Nordisk Way also underpins our performance management and incentive schemes. All employees are appraised against criteria for goal achievement as well as the extent to which their behaviours model the Novo Nordisk Way, as spelled out in the Essentials.

We have global codes of conduct and standards to ensure that we conduct our business ethically and responsibly: to prevent corruption, meet our responsibility to respect human rights, safeguard health and fair employment terms for our employees as well as those of our suppliers, effectively manage and mitigate impacts on the environment and respect the integrity of our business partners. These practices are put into action via robust governance and assurance, in adherence with international standards.

Evolving our culture
Novo Nordisk core capabilities provide a competitive advantage. Building on a deep disease understanding, we are a leader in chronic disease care. We have deep expertise in engineering, formulating, developing and delivering protein-based treatments. And we have the capacity for efficient large-scale production.

To meet the needs of the patients we serve, we are continuously challenging ourselves to raise the innovation-bar while pursuing aspirational goals. That, in turn, demands that we change how we work – that we evolve our culture – to think bigger, strive for simplicity and be more agile in order to quickly adapt to a constantly-changing business environment.

With bold ideas, the risk of failure will increase. We have to accept failure, and learn fast from them. We find inspiration from the agility and entrepreneurial mindset in biotech start-ups. One example is the Novo Nordisk Research Centre in Seattle, USA, where we work with cutting-edge technologies in life sciences. It was initially set up in 2009 to focus on our now discontinued research in autoimmune diseases. Since then, the site has transitioned into type 1 diabetes, obesity, immunology, kidney disease, device research and protein and peptide engineering. Here, a diverse group of 120 employees are encouraged to work together across functions and in close collaboration with the global R&D organisations across Novo Nordisk and 40 strategic partners.

The landmark development of Rybelsus®, the first ever oral GLP-1 product, is a stellar example of simplicity and agility. The submission for marketing approval of Rybelsus® embodies the FAST concept, introduced in 2019 across R&D: Flexible, Agile, Simple and Transformational. The team ensured parallel rather than sequential processes without compromising on quality, following a clinical development program involving more than 9,500 patients, 10 phase 3a studies, and more than 20 clinical pharmacology studies. As a result, timelines were reduced to way below industry standards, achieving approval within six months and bringing Rybelsus® faster to the market to the benefit of patients.

Our four Transformational Research Units, which pursue novel treatment forms and platform technologies, illustrate this type of cultural evolution. These biotech-like units, based in Denmark, the USA and the UK, operate as satellites to Novo Nordisk's central R&D function and drive innovation in prioritised fields such as translational cardio-metabolic research and stem cell research. Working in a highly agile manner, outside of the usual governance structures, they are largely free of most corporate formalities and control – so they can discover, enable and accelerate concepts and projects that will expand and diversify our pipeline with disruptive medicines. •

Novo Nordisk's 'Essentials'

1 We create value by having a patient centred business approach.

2 We set ambitious goals and strive for excellence.

3 We are accountable for our financial, environmental and social performance.

4 We provide innovation to the benefit of our stakeholders.

5 We build and maintain good relations with our key stakeholders.

6 We treat everyone with respect.

7 We focus on personal performance and development.

8 We have a healthy and engaging working environment.

9 We strive for agility and simplicity in everything we do.

10 We never compromise on quality and business ethics.

Innovation and therapeutic focus:

Innovative treatments and solutions to unmet needs

In the pursuit of our purpose, we pioneer scientific breakthroughs, expand access to our medicines, and work to prevent and ultimately cure the diseases we are experts in.

→ Chronic diseases affect hundreds of millions of people and are among the most urgent global health challenges. Left untreated, they can lead to life-threatening complications, and the burden they place on individuals, families and society is growing in every part of the world. We will take part in ensuring that more people have access to diagnosis and affordable treatment options where they do not currently exist, and we continue to drive innovation in our labs that can improve life for people living with a serious chronic disease.

Our innovation and therapeutic focus is leveraged by our commercial excellence. We draw upon insights from patients and partners to transform bold ideas into life-saving and preventive medicines. We make long-term investments in novel treatments and technologies, including curative stem cell-based therapies, and we continually advance the development of medical devices and digital health solutions.

Strengthen leadership in Diabetes care

There is a need for new and improved treatments that can provide better health outcomes for people with diabetes. According to the International Diabetes Federation 463 million people worldwide are now estimated to have diabetes[5], and eight out of ten live in low- and middle-income countries.[6] Less than half of them are treated, and even then, only a fraction of them live a life free of diabetes-related complications. As a consequence, people with diabetes have a higher risk of dying prematurely, with an average reduction in life expectancy of eight years.[7] People with diabetes have a 150% increase in risk of stroke[8] and as many as 70% of people with diabetes die from atherosclerotic cardiovascular diseases.[9] Without concerted action, it is estimated that 700 million people will have diabetes by 2045[10] with associated societal costs exceeding USD 1 trillion per year globally.[11]

We will remain the global leader for diabetes care and offer patient support solutions in addition to therapeutic treatment. Novo Nordisk currently holds a global diabetes market share of 29% and is growing this share, with a medium-term goal of at least one third of the market. We want to enable people with diabetes to lead healthy lives, and we have product offerings for all types of treatment needs (see 'Product overview'). Over the next decade, we will further raise the innovation-bar for diabetes treatment, with the goal of normalising life with diabetes.

More than half of our total sales in the diabetes care segment, insulin is still →

Strategic aspirations for 2025

Innovation and therapeutic focus

- Further raise the innovation-bar for diabetes treatment
- Develop a leading portfolio of superior treatment solutions for obesity
- Strengthen and progress the Biopharm pipeline
- Establish presence in Other serious chronic diseases focusing on cardiovascular disease, non-alcoholic steatohepatitis and chronic kidney disease

Diabetes is associated with shorter life expectancy and lower quality of life

Diabetes
Life expectancy 8 years shorter[7]

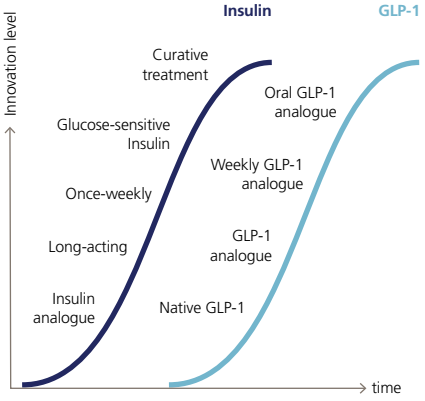
Driven by **200%** increased risk of **all-cause mortality**[12]

CVD
70% of people with diabetes die from **atherosclerotic CVD**[9]

150% increase in risk of stroke[8]

Organs
Higher likelihood of neuropathy, retinopathy, limb amputation, cancer and cognitive dysfunction

Further raise the innovation bar for diabetes treatment



important to Novo Nordisk, and it remains the only treatment for type 1 diabetes. We are relentlessly pursuing a cure for type 1 diabetes, and at the same time we are working to develop stem cell therapy that could be transformational.

We will strengthen our leading position within insulin and gain market share with our current portfolio of next-generation insulin products. Meanwhile, in our innovation pipeline we continue to focus on delivering improved glucose control, but we also target diabetes-related complications. We are researching glucose sensitive insulins and cardio-protective insulins.

With our two recent GLP-1 products, Ozempic® and Rybelsus®, we want to redefine type 2 diabetes treatment. Our intention is to position Rybelsus® as the preferred tablet, and Ozempic® as the preferred injectable GLP-1 for the treatment of type 2 diabetes.

We are at the forefront of innovation in the GLP-1 class and orally administered delivery devices and are pursuing several therapeutic opportunities with semaglutide.

Our digital health initiatives, which include connected devices and digital solutions, also aim to improve health outcomes for patients. Not only will these tools aim to make it easier for patients to manage their treatment and bring them in better control; this will potentially allow for data capture that can document adherence patterns as well as short and long-term benefits of our treatments.

Strengthen treatment options in Obesity care

Around 650 million adults live with obesity[13] and this number is expected to grow to more than one billion by 2025.[14] In addition, 120 million children have obesity.[15] People with obesity are at an increased risk of developing several comorbidities that are life-threatening and costly for society. From a socioeconomic perspective, obesity is one of the biggest disease burdens, with its global economic impact estimated at USD 2 trillion annually.[16]

Still, obesity is not widely recognised as a disease that may require medical treatment. Today, around 15 million people use anti-obesity medication.[18] Few medications exist, leaving a significant opportunity for Novo Nordisk as a market leader for anti-obesity medication. We aim to develop a leading portfolio of treatment solutions.

We are committed to expanding access to obesity care and helping patients lead healthy lives. The first step is to change how the world sees people with obesity and make obesity a healthcare priority. We are determined to combat the stigma and biases associated with obesity. We fight for better recognition of obesity as a treatable disease, taking a holistic approach. We aim to help a wider number of people, by partnering with professional associations and other stakeholders. In this effort, we need to engage with payers and educate healthcare professionals, encourage people with obesity to seek treatment, and develop educational programmes and open research initiatives.

We support this development with preventive interventions, commercial execution and pipeline research progress – developing a leading portfolio of superior treatment solutions and securing broad availability of treatments for people with obesity. Saxenda®, currently available in 46 countries, addresses a global unmet need for medical weight management. Over the next few years, we will make Saxenda® available to more people in more countries.

We are working to develop new anti-obesity medications based on semaglutide. We are awaiting the results of our pivotal phase 3a clinical development programme, STEP, which investigates injectable semaglutide for the treatment of obesity. Meanwhile, we are gathering evidence on how obesity management can lead to sustainable and relevant health, economic and societal outcomes.

Secure a leading position in Biopharm

Our Biopharm business is a strong speciality care unit that encompasses rare blood and rare endocrine disorders, both areas of significant unmet medical need.

While Biopharm's performance has been resilient and robust the future is not straightforward, due to intense competition and slower growth in the haemophilia and growth hormone markets. Therefore, we are expanding our focus to shape Biopharm for leadership in rare blood disorders and rare endocrine disorders.

In the near term the way we will be successful is by working towards →

The global burden of obesity

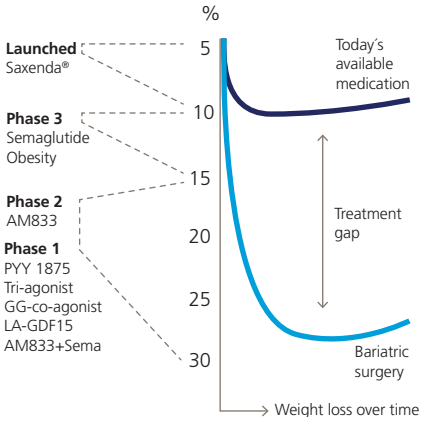
650 million
adults have obesity[13]

120 million
children have obesity[15]

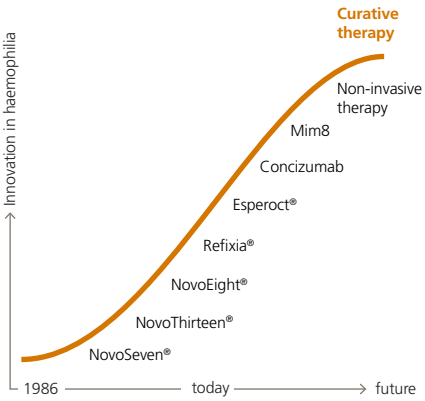
3.4 million
deaths were caused by obesity in 2010[17]

2 trillion
US dollars in annual global cost of obesity[16]

Develop a leading portfolio of superior treatment solutions for obesity



Strengthen and progress the Biopharm pipeline



developing and delivering faster and more front-loaded launches, in more markets. Additionally, we will strengthen our Biopharm platform by reinvigorating our R&D efforts and utilising the full range of the technology platforms at our disposal, as well as pursuing external opportunities.

Within rare blood disorders, we are well-positioned with a broad product portfolio in haemophilia. Our legacy recombinant product, NovoSeven®, remains resilient in a competitive market, and with our latest, long-acting products, Esperoct® and Refixia®, we are expanding our offering for patients with Haemophilia A, Haemophilia B and rare bleeding disorders. In 2019, we launched Esperoct® and are accelerating our launches to new markets so that many more patients can benefit from this extended half-life factor VIII therapy. We also succeeded in including the use of automated infusion pumps in the European label for NovoSeven®, a testimony to the strong life cycle management of our legacy products.

We will accelerate innovation by leveraging all Novo Nordisk R&D technology platforms – using the full spectrum from stem cell research to formulation and encapsulation – to expand our pipeline. In 2019, we initiated phase 3 clinical trials with concizumab for Haemophilia A and B with and without inhibitors. We are also about to begin phase 1 clinical trials with our next-generation recombinant factor VIII, Mim8, a bispecific antibody for subcutaneous prophylactic treatment in people with haemophilia A. Outside of haemophilia we are conducting phase 1 trials with EPI01 in sickle cell disease.

We will look for external assets as well. By joining forces with bluebird bio in next-generation genome editing, we aim to offer a potentially curative treatment for children and adults with haemophilia A.

Within rare endocrine disorders, we will maintain our leading position in the growth hormone segment by offering transformative treatment options. We will continue to explore innovation through all Novo Nordisk R&D platforms. We will build on the market-leading quality of our devices, support increased rates of diagnosis, and continue to work towards bringing somapacitan, our next-generation product intended for once-weekly treatment, to market to treat growth hormone disorders. Shifting the treatment paradigm from a daily to a weekly injection has the potential to significantly relieve the treatment burden for people with growth hormone deficiencies and may increase adherence and efficacy.

Establish presence in other serious chronic diseases

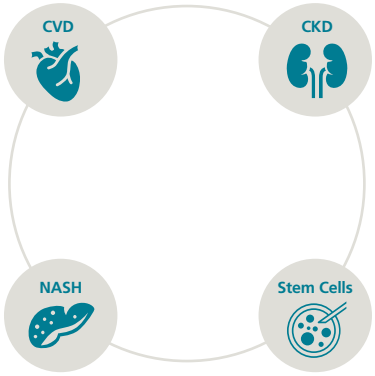
Finally, we are working to establish our presence in other serious chronic diseases such as cardiovascular diseases (CVD), non-alcoholic steatohepatitis (NASH) and chronic kidney disease (CKD).

NASH is a progressed stage of non-alcoholic fatty liver disease that affects an estimated 30 million people in the US, Europe and Japan and for which there are no approved treatments. NASH is a common comorbidity of diabetes and obesity; 80% of diagnosed NASH patients live with obesity[19], while 35% live with type 2 diabetes.[20] We are still exploring the potential of semaglutide to offer people with NASH better control over their disease as a stand-alone therapy and as a combination product together with our partner, Gilead, a global pharmaceutical company specialising in liver diseases.

We are also exploring therapies for treatment of cardiovascular diseases. Some of our GLP-1 products reduce the risk of cardiovascular disease and are also currently recommended for the treatment of type 2 diabetes for established cardiovascular disease. Oral semaglutide is being further investigated in cardiovascular outcomes trials and more early-stage projects are in the pipeline.

Multiple other serious chronic diseases represent vast unmet medical needs that are waiting to be defeated. We believe we can use our innovation capabilities to meet these. We will build a competitive pipeline and leverage our scientific leadership to broaden and widen our portfolio as we expand into adjacent disease areas. As in other therapy areas, we will nurture partnerships and relationships across our field force and R&D with healthcare professionals and other stakeholders. New technologies, including stem cell-based therapies, will help this expansion into new therapeutic areas such as Parkinson's disease, dry age-related macular degeneration, and chronic heart failure. Forming the right strategic alliances and transforming the way we deliver innovation will help us achieve our aspirations in this area. •

Establish presence in Other serious chronic diseases



Pipeline overview

Diabetes care

Project	Indication	Description	Phase
Rybelsus® NN9924	Type 2 diabetes	A long-acting oral GLP-1 analogue intended for once-daily oral treatment.	● ● ● ●
Anti-IL-21 GLP-1 T1D NN9828	Type 1 diabetes	A beta-cell preservation treatment intended for adults who are newly diagnosed with type 1 diabetes.	● ● ○ ○
Insulin icodec (LAI287) NN1436	Type 1 and 2 diabetes	A long-acting basal insulin analogue intended for once-weekly treatment.	● ● ○ ○
Insulin 965 NN1965	Type 1 and 2 diabetes	A novel basal insulin analogue intended for once-daily treatment.	● ○ ○ ○
Icosema (LAISema) NN1535	Type 2 diabetes	Combination of the GLP-1 analogue semaglutide and the long-acting basal insulin icodec intended for once-weekly treatment.	● ○ ○ ○

Obesity care

Semaglutide Obesity NN9536	Obesity	A long-acting GLP-1 analogue intended for once-weekly treatment.	● ● ● ○
AM833 NN9838	Obesity	A novel long-acting amylin analogue intended for once-weekly treatment.	● ● ○ ○
AM833 and semaglutide NN9838	Obesity	A combination of the novel amylin analogue and the GLP-1 analogue semaglutide intended for once-weekly treatment.	● ● ○ ○
LA-GDF15 NN9215	Obesity	A long-acting GDF15 analogue intended for appetite regulation leading to weight loss.	● ○ ○ ○
GG-co-agonist 1177 NN9277	Obesity	A glucagon and GLP-1 receptor co-agonist intended for once-weekly treatment.	● ○ ○ ○
PYY1875 NN9775	Obesity	A novel analogue of the appetite-regulating hormone, PYY, intended for once weekly treatment.	● ○ ○ ○
Tri-agonist 1706 NN9423	Obesity	A novel tri-agonist of the human GIP, GLP-1 and glucagon receptors intended for once-daily treatment.	● ○ ○ ○

Haemophilia

Concizumab NN7415	Haemophilia A and B with or without inhibitors	A monoclonal antibody against tissue factor pathway inhibitor intended for subcutaneous prophylaxis treatment.	● ● ● ○
Eclipse NN7533	Sickle cell disease and beta thalassaemia	An oral combination treatment of sickle cell disease. Project is developed in collaboration with EpiDestiny.	● ○ ○ ○
Mim8 NN7769	Haemophilia A with or without inhibitors	A next-generation FVIII mimetic bispecific antibody for subcutaneous prophylaxis of haemophilia A regardless of inhibitor status. Combined phase 1/2.	● ○ ○ ○

Growth disorder

Somapacitan AGHD NN8640	Adult growth hormone deficiency	A long-acting human growth hormone analogue intended for once-weekly subcutaneous administration in adults.	● ● ● ●
Somapacitan GHD NN8640	Growth hormone deficiency	A long-acting human growth hormone analogue intended for once-weekly subcutaneous administration in children.	● ● ● ○

NASH (non-alcoholic steatohepatitis)

Semaglutide NN9931	NASH	A long-acting GLP-1 analogue for treatment of NASH.	● ● ○ ○
Gilead:Sema combo NN9931	NASH	A GLP-1 analogue, semaglutide, in combination with an FXR agonist, cilofexor, an ACC inhibitor, firsocostat, or the three in combination. The project is developed in collaboration with Gilead.	● ● ○ ○

Cardiovascular disease

PCSK9i peptide NN6434	CVD	A long-acting PCSK9 inhibitor for subcutaneous treatment.	● ○ ○ ○

2020 expected key milestones

Oral semaglutide	Regulatory decision in Japan
AM833	Phase 2 results from Amylin in obesity
Semaglutide	Phase 2 results for semaglutide in NASH
Semaglutide	Phase 3 results for semaglutide in obesity
Ozempic®	Phase 3 results for 2 mg Ozempic®
Somapacitan	Regulatory decision for AGHD in the US and the EU

Patent status for marketed products

The patent expiry dates for the product portfolio are shown in the table below. The dates provided are for expiry in the US, Germany, China and Japan of patents on the active ingredient, unless otherwise indicated, and include extensions of patent term, when applicable. For several products, in addition to the active ingredient patent, Novo Nordisk holds other patents on manufacturing processes, formulations or uses that may be relevant for exclusivity beyond the expiration of the active ingredient patent. Furthermore, regulatory data protection and/or orphan exclusivity may apply.

Key marketed products in main markets (active ingredients)	**USA**	**China**	**Japan**	**Germany**
Diabetes:				
Human insulin	Expired	Expired	Expired	Expired
NovoRapid® (NovoLog®)	Expired	Expired	Expired	Expired
NovoMix® 30 (NovoLog® Mix 70/30)	Expired	Expired	Expired	Expired
NovoNorm® (Prandin®)	Expired	Expired	Expired	Expired
Levemir®	Expired	Expired	Expired	Expired
Victoza®	2023	Expired	2022	2023
Tresiba®	2029	2024	2027	2028
Ryzodeg®	2029	2024	2024[2]	2028
Xultophy®	2029	2024	2024[2]	2028
Fiasp®	(2030)[3]	(2030)[3]	(2030)[3]	(2030)[3]
Ozempic®	2031[1]	2026	2031[1]	2031
Rybelsus®	2031[1,7]	2026[7]	2031[1,7]	2031[7]
Obesity:				
Saxenda®	2023	Expired	Expired	2023
Haemophilia, growth disorders and hormone replacement therapy:				
Norditropin® (Norditropin® SimpleXx®)	Expired	Expired	Expired	Expired
Macrilen™	2027[8]	N/A	N/A	N/A
NovoSeven®	Expired[4]	Expired[4]	Expired[4]	Expired[4]
NovoEight®	N/A	N/A	N/A	N/A
NovoThirteen® (TRETTEN®)	2021	N/A	Expired	Expired
Refixia® (REBINYN®)	2028[1]	2022	2027[1]	2027[1]
Esperoct®	2032[1]	2029	2034[1]	2034[1]
Vagifem® 10 mcg	2022[5,6]	N/A	2021[5]	N/A

1. Current estimates. **2.** Patent term extension until 2027 may apply. **3.** Formulation patent; active ingredient patent has expired. **4.** Room temperature-stable formulation patent until 2023 in China, Germany and Japan and until 2025 in the US. **5.** Patent covers low-dose treatment regimen. **6.** Licensed to several generic manufacturers from October 2016. **7.** Tablet formulation and once-daily treatment regimen are protected by additional patents expiring in 2031-2034. **8.** Protects method of use and kits of parts.

Commercial execution:

International Operations: Building a sustainable platform for accelerated growth

Strategic aspirations for 2025

Commercial execution

- Strengthen Diabetes care leadership – aim at a global value market share of more than 1/3
- Strengthen Obesity care leadership and double current sales[1]
- Secure a sustained growth outlook for Biopharm

1. Based on 2019 sales

Our International Operations (IO) unit covers 190 countries and 95% of the world's population. Around 430 million people are living with diabetes in these countries[21] and an estimated 570 million live with obesity.[22] The unmet needs are huge, and Novo Nordisk is gearing up for growth, with a strategic aspiration of 6-10% annual growth in sales towards 2025.

→ Across IO, the number of people with diabetes is rising fast. As economies grow, so too does the level of access to different types of diabetes treatment. In a business unit as broad as IO, this creates a high degree of complexity due to different levels of security, economic development and political situation in the respective regions.

The fastest increase in type 2 diabetes is seen in emerging economies, where rapid urbanisation leads to more sedentary lifestyles and less healthy diets. Type 2 diabetes in younger people is also a significant global trend that will increasingly affect the way we operate commercially.

With type 2 diabetes so closely linked to obesity, these trends are also informing our obesity strategy. As the number of younger people with obesity grows, so does the number of instances of diabetes in people in their 30s and 40s. At this age, these are primarily working people, which means that doctors need to give them different guidance to what they might tell a retiree.

A market fit approach

To ensure as many as possible of these people can access our treatments, we tailor our strategic approach to the specific needs of each market. We have a diverse portfolio of products that enables us to have suitable offers for all situations – we call that our market fit approach. For example, our range of basal insulin includes human insulin, modern insulin and next-generation insulin – providing us with a solid base as a leader in diabetes care. At the same time, we also offer GLP-1 products that we expect will drive future growth in Diabetes and Obesity care.

There are local market considerations, too. In Latin America, for example, we are seeing an increase in healthcare spending. However, this is counterbalanced by high political risks – for example, high inflation rates in Venezuela and Argentina.

In China, meanwhile, a huge ageing population points to growing unmet medical needs in the future. As a result, healthcare is high on the Chinese government's agenda through general reform and programmes such as Healthy China 2030.

Across IO, Novo Nordisk holds the leading diabetes value market share in most countries. In markets where this is not the case, we want to grow our share. In order to respond to the diverse conditions and trends across our geographic regions and therapeutic focus areas, we constantly evaluate our business decisions and fine-tune our strategy to make sure we meet local market needs and challenges.

By combining this market fit approach with the business ethics enshrined in the Novo Nordisk Way, we believe we have the framework we need to achieve our commercial goals sustainably.

Growing fast and sustainably

2019 demonstrated that our commercial model is working. We accelerated our sales growth to 11% at CER in 2019 compared to around 5% at CER historically. This has been enabled by:

- Changing demographics across geographies that lead to significant increase in unmet medical needs
- Our market fit approach – where our regional teams develop product strategies fit for their areas
- Our portfolio of products

Looking ahead, our ambition is to drive growth by establishing leadership in the basal insulin space, accelerating the growth of the GLP-1 market, and expanding the obesity market.

We want to broaden access to diabetes treatments – and make treatment more affordable. This is where we can strengthen our market leadership in basal insulin.

Last year, Tresiba® became available to patients in France, Germany and China, and we are already beginning to see more patients benefiting from this, our flagship next-generation basal insulin. In the next few years, we expect to launch Tresiba® and Xultophy® in several other countries where new-generation insulin are not available today. →

Whilst we remain value leaders in the GLP-1 market, we are facing increased competitive pressures and a decline in our market share in some IO regions. This year, we focused on turning this trend around. We are leveraging the label update for Victoza® achieved on the basis of results from the LEADER trial, which showed that liraglutide is associated with significant cardiovascular risk reduction in people with type 2 diabetes. Meanwhile, we are rolling out Ozempic® as fast as we can wherever there is a market opportunity. This is helping us to increase our share of market growth, bringing us closer to realising our medium-term ambition of more than 50%.

We are also planning launches of the first and only GLP-1 in a tablet, Rybelsus®, in the same timeframe. Because Rybelsus® will follow a route driven by general practitioners and patient demands it is likely to put pressure on our field force capacities, as our representatives will have to reach far more healthcare professionals and have less time with each. We are mitigating this by exploring partnerships that can give us extra and flexible field force resources when we need them.

To maximise the opportunity this presents, we have agreed to enter a co-promotion partnership with the major pharmaceutical firm MSD, whose vast experience in marketing oral antidiabetics (OADs) to Japanese diabetes specialists is key our efforts to bring the treatment into the hands of as many people as possible.

In Obesity care, we are investing to expand the market by working with a variety of stakeholders including policymakers to ensure that it is more widely recognised as a disease that can be tackled through medical intervention.

Saxenda® is already delivering value here, with around 72% of market growth over the last year. We plan for several more launches between 2020 and 2022, at which point we hope to be ready to introduce semaglutide for obesity into this fast-growing therapy area.

In Biopharm we will focus on expanding our footprint in haemophilia A and B. Haemophilia A constitutes the largest patient population in haemophilia and our ability to secure a leading position in rare blood disorders will be driven by our success in growing sales with NovoEight® and Esperoct®. Furthermore, we are confident that an increasing number of patients living with haemophilia B will choose Refixia®.

Combining research and commercial innovation

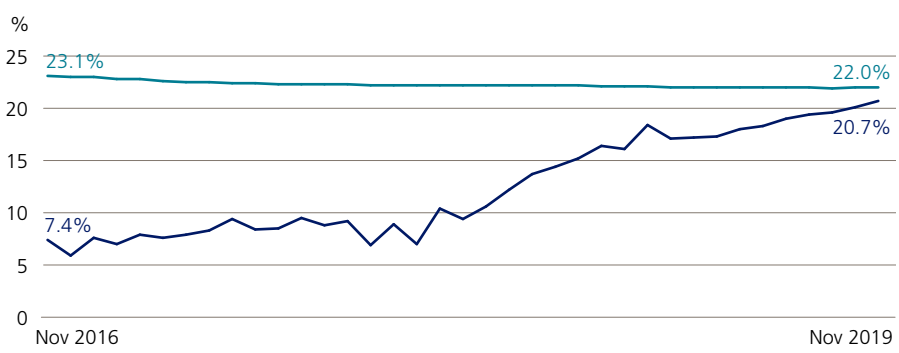
We believe Rybelsus® – our semaglutide-based oral diabetes medicine – will transform the lives of millions of people across IO by helping people to manage their disease. Our aim, therefore, is to secure broad access to this world-first innovation, and we are already taking steps to ensure this ahead of the product's first IO launch.

We are also capitalising on innovation developments in different regions. For example, in China, the government's push for innovation in healthcare is helping us broaden and deepen our relationships there. The Chinese government is enabling quicker clinical review and encouraging the use of generics to drive more cost-efficiency – meaning we will have shorter windows of opportunity and shorter product lifecycles.

To help Chinese patients better manage their diabetes, we are working closely with the government in China to provide digital healthcare solutions. One example is WeDoctor – a nationwide medical consulting platform connecting an astounding 172 million patients and 300,000 doctors. This platform allows patients and doctors to stay in touch via a user-friendly mobile app.

But when it comes to delivering better treatments to people living with diabetes, obesity or other chronic diseases, commercial innovation can be just as important as product innovation. This is why we constantly assess and - if necessary - rethink the way we execute our strategy. This year, for example, we created separate teams for GLP-1, insulin and Biopharm, respectively, to give each area more focus and decision-making autonomy. •

Novo Nordisk diabetes value market share and share of growth in International Operations



Commercial execution:

North America Operations: Ready for growth in a challenging business environment

Strategic aspirations for 2025

Commercial execution

- Strengthen Diabetes care leadership – aim at a global value market share of more than 1/3
- Strengthen Obesity care leadership and double current sales[1]
- Secure a sustained growth outlook for Biopharm

1. Based on 2019 sales

Around half of our global sales are generated in the US, making our North America operations – the US and Canada – a critical component of our business. We are successfully transforming our business by utilising the potential of our innovative product offerings and we have strengthened our commitment to our social responsibility to make insulin available to all patients.

More than 30 million people in the US live with diabetes.[23] Of those, millions remain undiagnosed and are not getting proper treatment.

The numbers are just as alarming in obesity – if not more so. According the Centers for Disease Control & Prevention, more than 93.3 million people were living with obesity in 2016[24], costing the US healthcare system 1.72 trillion US dollars annually.[25]

The unmet needs are beyond question and have brought about new dynamics in the marketplace. Payer consolidation puts pressure on prices of medicines, government interventions aim to address structural barriers to effective care, healthcare is undergoing a digital transformation, and across all of these looms the urgency of providing affordable care for uninsured and underinsured people like those in high-deductible healthcare plans.

Successfully adapting to the new business environment

In this challenging business environment, Novo Nordisk is going through a historic transition to remain a market leader and secure future growth, contributing to the company's overall goal to achieve a global diabetes value market share of more than one-third. Towards 2022, it is expected that around 70% of sales will be from innovative new products, while the remaining 30% will be legacy products. To help us reach our medium-term goals, we have a clear growth strategy centred around bringing innovative new products to market – and increasing our market share.

Our GLP-1 offerings provide improved treatment for broader segments of patients. Meanwhile, we continue to deliver insulins and grow the volume amidst pricing challenges. We are building the market for obesity care, enhancing growth opportunities for our innovative products. And we remain committed to serving patients with haemophilia and growth disorders.

Reaching significant milestones

We have reached three very important milestones, all of which emphasise the strength of our existing – and future – GLP-1 franchise:

- Rybelsus®, our oral semaglutide medicine for type 2 diabetes, was approved by the US Food & Drug Administration (FDA) in September 2019, with the first prescriptions written the following month,
- In January 2020, Ozempic® our once-weekly type 2 diabetes medicine, was approved in the US for cardiovascular risk reduction in people with type 2 diabetes and established cardiovascular disease.
- Ozempic® reached global blockbuster status in September 2019, with the bulk of sales generated in the US.

Innovating for diabetes leadership

Our ultimate goal for diabetes treatment is to help patients live as full and healthy lives as possible. We want to change how the disease is treated and how it is viewed, offering products that meet medical needs and match patients' lifestyles.

We built our position as the world's largest insulin producer through innovative injectable drugs. Going forward, we will transform the market with our industry-first GLP-1 in a tablet, Rybelsus®. In the US, around 70% of diabetes prescriptions are for oral treatments, and so far none are from the highly effective GLP-1 class which we specialise in. We are confident that the launch of Rybelsus® will change this.

But our focus is not only on portfolio innovation; we also need to improve access and play a key role in prevention. This means effecting change everywhere that influences, or is influenced by the disease – including research, education, public policy, as well as humanitarian and outreach efforts.

Championing affordability for patients in a complex healthcare system

Tackling the structural challenges in →

the US healthcare system calls for long-term reform changes to make sustainable and meaningful affordability a reality. We are doing our part and updating our support offerings, engaging with multiple stakeholders. We acknowledge the role of list prices, but more needs to be done to improve how insurance benefits cover essential medicines, especially through high deductible health plans. See our offerings to provide affordable insulin in 'Leading a sustainable business'.

Advocating for stronger obesity focus and policies

We have a clear ambition to offer medical treatment for more people with obesity and expect to double the sales of our obesity products globally by 2025. In the US and Canada, we work to bring superior treatments to market, and engage with key stakeholders and policymakers to make obesity a healthcare priority.

The launch of our Changing Obesity™ aspiration in January 2019 underscores our commitment to change how the world sees, treats and works to prevent obesity. In this effort we work with partners from both public and private sectors.

A case in point is our contribution – via an educational grant – to the establishment of the US Obesity Medicine Clinical Fellowship Development Program. Thanks to this grant, the Obesity Society and the Obesity Medicine Association are working to increase the number of physicians with specialised training in caring for and treating patients with obesity and its complications. In 2019, seven new Obesity Fellowships were awarded.

We also invested considerable time and resources in and joined forces with key stakeholders to advocate for the Treat and Reduce Obesity Act, a vital piece of legislation that will improve access to care for people with obesity. The Act addresses policy barriers to obesity care and coverage, including access to pharmacotherapy.

All of these measures are helping shift social perspectives towards recognition of obesity as a chronic disease and empower people living with obesity in the US to seek and receive the respectful, complete care they deserve.

Promising prospects in biopharm

Haemophilia remains a key focus in our biopharm business. We want to help patients living with this disease manage it better so they can lead healthier and more fulfilling lives.

The FDA approval of Esperoct® in February 2019 and the Breakthrough Therapy Designation for concizumab for prophylaxis treatment in people with haemophilia B with inhibitors were important milestones in the fight against this serious chronic disease.

In our growth disorders business, we are awaiting the response on somapacitan – a new long-acting growth hormone for treatment in adults with growth hormone deficiency, which we submitted for the US FDA regulatory approval in September 2019. •

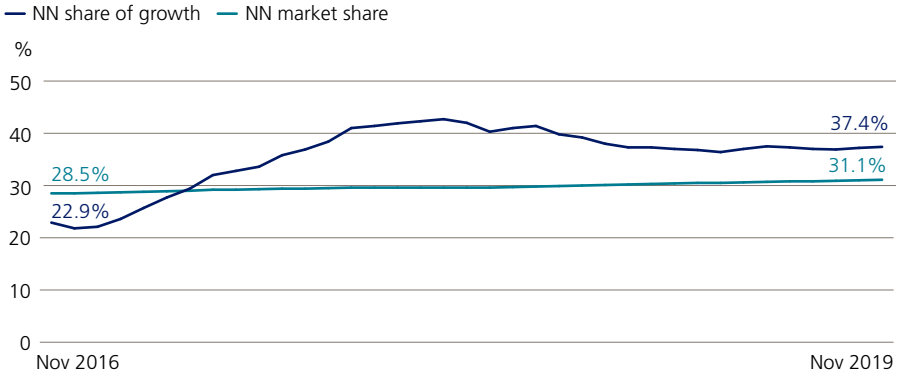
In a few years, Novo Nordisk USA aspire to have

2 new blockbusters on the market

notably increase the number of patients treated

turned around approx. 70% of sales (from 2015)

Novo Nordisk diabetes value market share and share of growth in North America Operations



Financials:

2019 performance and 2020 outlook

Financial performance

Novo Nordisk's 2019 performance for sales measured at constant exchange rates (CER) exceed the outlook provided in February 2019, while operating profit measured at CER was within the range provided in February 2019. The free cash flow marginally exceeded the outlook provided in February 2019, while the tax rate was lower following a positive impact from non-recurring changes to deferred tax assets. Capital expenditure was broadly in line with the guidance provided in February 2019.

Geographic sales development

Sales increased by 9% measured in Danish kroner and by 6% at CER to DKK 122,021 million in 2019. Sales in International Operations increased by 12% measured in Danish kroner and by 11% at CER. Sales in North America Operations increased by 6% measured in Danish kroner and by 1% at CER. The sales growth is in line with the latest guidance of '5-6% sales growth at CER' provided in connection with the announcement in November 2019 for the financial results of the first nine months of 2019.

Sales development across therapeutic areas

Sales growth in 2019 was 9% measured in Danish kroner and 6% at CER was driven by solid growth across all therapy areas with Diabetes care sales growth of 4% (CER), Obesity care sales growth of 42% (CER) and Biopharm sales growth of 4% (CER).

Diabetes care, sales development

Sales in Diabetes care increased by 8% measured in Danish kroner and by 4% at CER to DKK 97,161 million driven by solid GLP-1 growth, partly offset by declining insulin sales. Novo Nordisk has improved its global diabetes value market share over the last 12 months from 27.8% to 28.6%, driven by improved global insulin market share and growth of the GLP-1 segment, reflecting an expansion of the diabetes value market share in North America Operations and a stabilisation of the value market share in International Operations.

In the following sections, unless otherwise noted, market data are based on moving annual total (MAT) from November 2019 and November 2018 provided by the independent data provider IQVIA.

Insulin

Sales of insulin remained unchanged in Danish kroner and decreased by 3% at CER to DKK 59,693 million. The decreased sales measured at CER were driven by declining sales in the USA, partly offset by increased sales in International Operations.

Sales of long-acting insulin remained unchanged in Danish kroner and decreased by 4% at CER to DKK 20,776 million. Novo Nordisk has improved its global volume market share in the long-acting insulin segment from 31.6% to 32.4% in the last 12 months. The decreased sales measured at CER were driven by declining Levemir® sales, partly offset by a positive impact from Tresiba® and Xultophy®. Tresiba® has now been launched in 86 countries, while Xultophy® has now been launched in 37 countries.

Sales of premix insulin increased by 4% measured in Danish kroner and by 2% at CER to DKK 10,578 million. Novo Nordisk is market leader in the premix insulin segment with a global volume market share of 63.9%, which has been broadly unchanged over the past 12 months. The increased sales were driven by increased sales of Ryzodeg®, partly offset by declining NovoMix® sales. Ryzodeg® has now been launched in 30 countries.

Sales of fast-acting insulin remained unchanged in Danish kroner and decreased by 3% at CER to DKK 19,303 million. Novo Nordisk is market leader in the fast-acting insulin segment with a global volume market share of 50.7%, which has been broadly unchanged over the past 12 months. The decreasing sales measured at CER were driven by declining sales of NovoRapid®, partly offset by a positive impact from Fiasp®. Fiasp® has now been launched in 33 countries. →

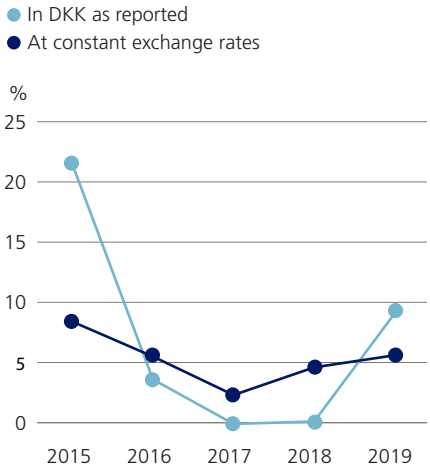
Strategic aspirations for 2025

Financials

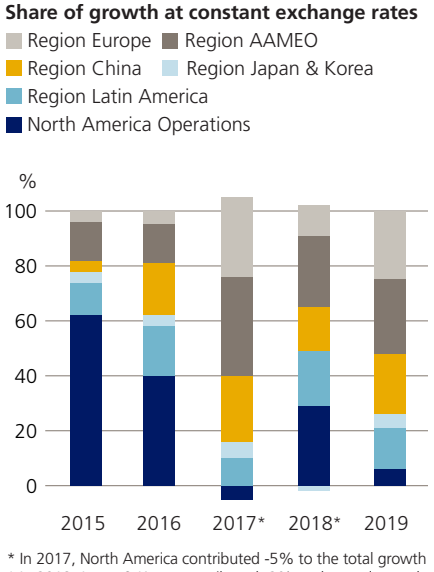
- Deliver solid sales and operating profit growth
  – Deliver 6-10% sales growth in International Operations
  – Transform 70% of sales in the USA[2]
- Drive operational efficiencies across the value chain to enable investments in future growth assets
- Deliver free cash flow to enable attractive capital allocation to shareholders

2. From 2015 to 2022

Sales growth



Share of growth at constant exchange rates



* In 2017, North America contributed -5% to the total growth
* In 2018, Japan & Korea contributed -2% to the total growth

Sales of human insulin decreased by 2% measured in Danish kroner and by 5% at CER to DKK 9,036 million.

GLP-1 therapy for type 2 diabetes
Sales of GLP-1 products for type 2 diabetes (Victoza®, Ozempic® and Rybelsus®) increased by 27% measured in Danish kroner and by 22% at CER to DKK 33,221 million. Sales growth was driven by both North America Operations and International Operations. Sales of Ozempic® were DKK 11,237 million and Ozempic® has now been launched in 26 countries in North America Operations, Region Europe, Region Latin America and Region AAMEO. The GLP-1 segment's value share of the total diabetes market has increased to 18.0% compared with 14.4% 12 months ago. Novo Nordisk continues to be the global market leader in the GLP-1 segment with a 47.5% value market share.

Obesity care, sales development

Sales of Saxenda® increased by 47% measured in Danish kroner and by 42% at CER to DKK 5,679 million. Sales growth of Saxenda® was driven by both International Operations and North America Operations. Saxenda® has now been launched in 46 countries. Novo Nordisk currently has a value market share of 56% of the global obesity prescription drug market.

Biopharm

Biopharm, sales development

Sales of biopharm products increased by 7% measured in Danish kroner and by 4% at CER to DKK 19,181 million. The sales development was driven by sales growth in both operating units as well as across both franchises: Haemophilia and Growth disorders. Sales growth in International Operations was driven by Region Latin America, Region AAMEO, Region China and Region Japan & Korea.

Haemophilia
Sales of haemophilia products increased by 7% measured in Danish kroner and by 4% at CER to DKK 10,281 million. The increasing sales were driven by the continued global roll-out of Refixia® and NovoEight®. Novo Nordisk continues to expand its broad global haemophilia presence.

Sales of NovoSeven® increased by 3% measured in Danish kroner, and remained unchanged at CER, to DKK 8,119 million, reflecting the solid position of NovoSeven® as a haemostatic agent in critical treatment settings and a wide range of labelled indications in an increasingly competitive environment. The sales development is driven by increased sales in Region Latin America, Region AAMEO and Region China as well as stable sales in North America Operations offset by declining sales in Region Europe and Region Japan & Korea.

Sales of NovoEight® increased by 13% measured in Danish kroner and by 10% at CER to DKK 1,525 million. Sales growth was driven by Region Latin America, Region AAMEO, Region Europe and North America Operations. NovoEight® has now been launched in 52 countries.

Sales of Refixia® increased to DKK 382 million. Sales growth was driven by the product launches in Region Europe, Region Japan & Korea and North America Operations. Refixia® has now been launched in 16 countries.

Esperoct® has now been launched in nine countries and the initial feedback from patients and physicians is encouraging.

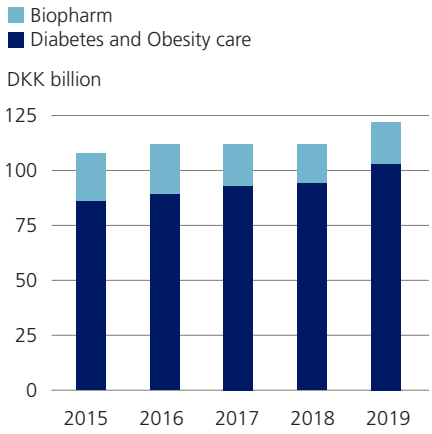
Growth disorders (Norditropin®)
Sales of growth disorder products increased by 6% measured in Danish kroner and by 2% at CER to DKK 7,275 million. The increasing sales were driven by International Operations increasing by 3% at CER and by North America Operations increasing by 2% at CER. Novo Nordisk is the leading company in the global human growth disorder market with a market share measured in value of around 33% driven by new indications and the introduction of the next-generation device.

Development in costs and operating profit

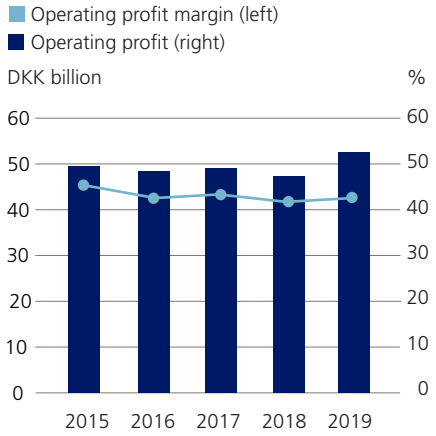
The cost of goods sold increased by 14% measured in Danish kroner and by 12% at CER to DKK 20,088 million, resulting in a gross margin of 83.5% measured in Danish kroner, compared with 84.2% in 2018. The decrease in gross margin reflects a negative impact from lower realised prices in the USA and impairment of intangible assets, partly countered by a positive product mix driven by increased GLP-1 sales and a positive currency impact of 0.3 percentage point.

Sales and distribution costs increased by 8% measured in Danish kroner and by 6% at CER to DKK 31,823 million. The increase in sales and distribution costs was →

Sales by segment



Operating profit



driven by International Operations reflecting resource allocation to growth markets and promotional activities for Victoza® and launch activities for Ozempic®, promotional activities for insulin, particularly in China, as well as promotional activities for the continued roll-out of Saxenda®. In the USA, promotional activities are focusing on Ozempic® and Saxenda® as well as launch activities for Rybelsus®, partly offset by lower promotional spend related to insulin.

Research and development costs decreased by 4% measured in Danish kroner and by 6% at CER to DKK 14,220 million, positively impacted by reversal of write-downs of prelaunch inventory in first quarter of 2019 following the filing of Rybelsus® to the US FDA, severance costs in second half of 2018 and the expense of the priority review voucher for Rybelsus® in fourth quarter of 2018 partly offset by impairment of intangible assets in 2019. The underlying increase in R&D costs is driven by increased costs for the semaglutide in obesity clinical programmes STEP and SELECT, the ramp-up of the SOUL cardiovascular outcomes trial with Rybelsus® as well as increased costs for the semaglutide NASH development activities, partly offset by the completion of the Rybelsus® phase 3a development programme and the completion of the head-to-head study between Tresiba® and insulin glargine U300.

Administration costs increased by 2% measured in Danish kroner and by 1% at CER to DKK 4,007 million, reflecting increased legal costs while spend across administrative areas was broadly unchanged.

Other operating income (net) was DKK 600 million compared with DKK 1,152 million in 2018. The decline in Other operating income (net) in 2019 compared with 2018 reflects non-recurring income in 2018 and decrease in income from licence agreements.

Operating profit increased by 11% in Danish kroner and by 6% at CER to DKK 52,483 million, which is in line with the latest guidance for operating profit growth measured at CER of '4-6%' in 2019.

Financial items (net) and tax

Financial items (net) showed a net loss of DKK 3,930 million compared with a net gain of DKK 367 million in 2018. The reported net financial items in 2019 is in line with the latest guidance of 'loss of around DKK 3.9 billion'.

In line with Novo Nordisk's treasury policy, the most significant foreign exchange risks for the Group have been hedged, primarily through foreign exchange forward contracts. The foreign exchange result was a loss of DKK 3,212 million compared with a gain of DKK 298 million in 2018. This development reflects a loss on foreign exchange hedging, especially related to the US dollar versus the Danish krone.

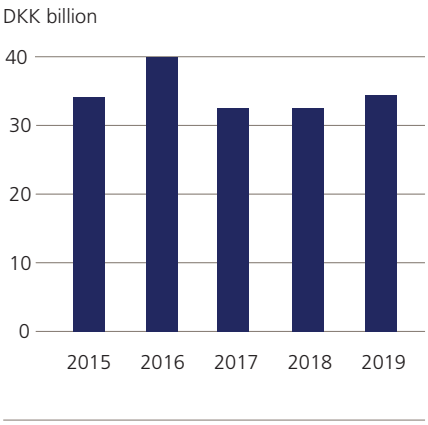
As per the end of December 2019, a negative market value of financial contracts of approximately DKK 0.3 billion has been deferred for recognition in 2020.

The effective tax rate was 19.8% in 2019 compared with an effective tax rate of 18.9% in 2018. The reported effective tax rate of 19.8% is in line with the latest guidance of a tax rate of '19-21%' for 2019. The effective tax rate for 2019 was positively impacted by minor non-recurring changes to deferred tax assets following the approval of the Swiss tax reform, while non-recurring changes in tax provisions related to settlement of international tax cases positively impacted the 2018 tax rate.

Capital expenditure and free cash flow

Capital expenditure for property, plant and equipment was DKK 8.9 billion compared with DKK 9.6 billion in 2018, which is in line with the latest guidance of 'around DKK 9 billion'. Capital expenditure was primarily related to investments in a new production facility for diabetes active pharmaceutical ingredients in Clayton, North Carolina, USA, expansion of production facilities in Kalundborg, Denmark, expansion of production facilities in Chartres, France and a new diabetes filling capacity in Hillerød, Denmark.

Free cash flow



Free cash flow was DKK 34.5 billion compared with DKK 32.5 billion in 2018, which is in line with the latest guidance of 'DKK 31-35 billion'. The increase of 6% compared with 2018 primarily reflects increased cash from operating activities driven by the timing of rebate payments in the USA. →

Key invoicing currencies	Impact on Novo Nordisk's operating profit in the next 12 months of a 5% movement in currency	Hedging period (months)
USD	DKK 1,950 million	9
CNY[1]	DKK 450 million	7
JPY	DKK 150 million	12
CAD	DKK 130 million	9
GBP	DKK 100 million	10

[1] Chinese yuan traded offshore (CNH) used as proxy when hedging Novo Nordisk's CNY currency exposure

Outlook 2020

The current expectations for 2020 are summarised in the table below:

Expectations are as reported, if not otherwise stated	Expectations 5 February 2020
Sales growth	
at CER	3% to 6%
as reported	Around 1 percentage point higher than at CER
Operating profit growth	
at CER	1% to 5%
as reported	Around 1 percentage point higher than at CER
Financial items (net)	Loss of around DKK 1.5 billion
Effective tax rate	20% to 22%
Capital expenditure (PP&E)	Around DKK 6.5 billion
Depreciation, amortisation and impairment losses	Around DKK 5 billion
Free cash flow	DKK 36-41 billion

For 2020, sales growth is expected to be 3% to 6%, measured at CER. This guidance reflects expectations for robust performance for the GLP-1-based diabetes care products Ozempic®, Victoza® and Rybelsus®, the obesity care product Saxenda®, the portfolio of new-generation insulin and the contribution from the biopharm products Esperoct®, Refixia® and NovoEight®. The guidance also reflects intensifying competition both within Diabetes care and Biopharm, especially within the haemophilia inhibitor segment. Furthermore, continued pricing pressure within Diabetes care as well as expansion of already announced affordability initiatives, especially in the USA, are expected to impact sales development. Given the current exchange rates versus the Danish krone, growth reported in DKK is expected to be around 1 percentage point higher than at CER.

For 2020, operating profit growth is expected to be 1% to 5%, measured at CER. The expectation for operating profit growth primarily reflects the sales growth outlook and continued focus on resource allocation. Operating profit growth is negatively impacted by increased investments in commercial activities related to the commercial priorities across the operating units including the introduction of Rybelsus® in the USA, the continued global expansion of the injectable GLP-1 diabetes franchise, the global investment in building an anti-obesity market and the promotional activities for roll-out of the Biopharm portfolio. Given the current exchange rates versus the Danish krone, growth reported in DKK is expected to be 1 percentage point higher than at CER.

For 2020, Novo Nordisk expects financial items (net) to amount to a loss of around DKK 1.5 billion, offsetting the positive currency impact on operating profit. The current expectation for 2020 primarily reflects losses associated with foreign exchange hedging contracts, mainly related to the US dollar and Chinese yuan versus the Danish krone.

The effective tax rate for 2020 is expected to be in the range of 20-22%.

Capital expenditure is expected to be around DKK 6.5 billion in 2020, primarily relating to investments in additional capacity for active pharmaceutical ingredient (API) production within Diabetes care and an expansion of thefilling capacity within Diabetes care. Depreciation, amortisation and impairment losses are expected to be around DKK 5 billion. The decline in depreciation, amortisation and impairment losses in 2020, compared with the level in 2019, reflects higher levels of impairment losses in 2019. Free cash flow is expected to be DKK 36-41 billion.

All of the above expectations are based on assumptions that the global or regional economic and political environment will not significantly change business conditions for Novo Nordisk during 2020, including the potential implications from major healthcare reforms, and that the currency exchange rates, especially the US dollar, will remain at the current level versus the Danish krone. Neither does the guidance include the financial implications in case of a significant bolt-on acquisition during 2020. Furthermore, the guidance does not include any significant impact from the outbreak of coronavirus.

Novo Nordisk has hedged expected net cash flows in a number of invoicing currencies and, all other things being equal, movements in key invoicing currencies will impact Novo Nordisk's operating profit as outlined in the table Key invoicing currencies.

Long-term financial targets

Novo Nordisk introduced four long-term financial targets in 1996 to balance short- and long-term considerations . The targets were subsequently revised and updated on several occasions, most recently in connection with the Annual Report for 2018 released in February 2019.

With the performance in 2019, Novo Nordisk has met its long-term financial targets comprising average operating profit growth of 5%, cash-to-earnings of 85% (3-year average) and operating profit after tax over net operating assets (OPAT/NOA) of 80%. →

Long-term financial targets

	2019	2018	2017	2016	**Average 2016 - 2019**	Target
Operating profit growth at CER[1]	5.6%	2.8%	4.8%	6.2%	4.9%	5%
Operating profit after tax to net operating assets	98.0%	116.7%	143.2%	150.2%		80%
Cash to earnings	88.4%	84.2%	85.5%	105.4%		
Cash to earnings (three-year average)	86.0%	91.7%	96.4%	102.4%		85%

1 Operating profit growth at CER for 2016 is adjusted for DKK 2,376 million from the partial divestment of associated company and DKK 449 million from the income related to the out-licensing of assets for inflammatory disorders in 2015.

Strategic aspirations for 2025

To reflect the broad growth aspects of Novo Nordisk across therapy areas and geographies, the historic approach to long-term financial targets focusing on specific financial aspects is no longer sufficiently describing Novo Nordisk's future growth outlook. Consequently, Novo Nordisk announced in connection with its Capital Markets Day in November 2019 that it is replacing the current long-term financial targets structure with a more comprehensive approach describing the future growth aspirations of the company under the headline: Strategic aspirations for 2025.

The strategic aspirations, reflecting the sustained growth opportunities until 2025, are intended to cover future growth drivers of Novo Nordisk and thereby providing investors with an understanding of Novo Nordisk's growth and investment opportunities across therapy areas and geographies.

The strategic aspirations are objectives that Novo Nordisk intends to work towards and are not a projection of Novo Nordisk's financial outlook or expected growth. Novo Nordisk intends to describe how its activities develop in relation to each of the four dimensions on an ongoing basis.

Forward-looking statements

Novo Nordisk's reports filed with or furnished to the US Securities and Exchange Commission (SEC), including this statutory Annual Report 2019 and Form 20-F, which are both expected to be filed with the SEC in February 2020 in continuation of the publication of this Annual Report 2019, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as 'believe', 'expect', 'may', 'will', 'plan', 'strategy', 'prospect', 'foresee', 'estimate', 'project', 'anticipate', 'can', 'intend', 'target' and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

- statements of targets, plans, objectives or goals for future operations, including those related to Novo Nordisk's products, product research, product development, product introductions and product approvals as well as cooperation in relation thereto,
- statements containing projections of or targets for revenues, costs, income (or loss), earnings per share, capital expenditures, dividends, capital structure, net financials and other financial measures,
- statements regarding future economic performance, future actions and outcome of contingencies such as legal proceedings, and
- statements regarding the assumptions underlying or relating to such statements.

In this Annual Report 2019, examples of forward-looking statements can be found under the headings '2019 Performance and 2020 outlook' and elsewhere.

These statements are based on current plans, estimates and projections. By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and specific. Novo Nordisk cautions that a number of important factors, including those described in this Annual Report 2019, could cause actual results to differ materially from those contemplated in any forward-looking statements.

Factors that may affect future results include, but are not limited to, global as well as local political and economic conditions, including interest rate and currency exchange rate fluctuations, delay or failure of projects related to research and/or development, unplanned loss of patents, interruptions of supplies and production, product recalls, unexpected contract breaches or terminations, government-mandated or market-driven price decreases for Novo Nordisk's products, introduction of competing products, reliance on information technology, Novo Nordisk's ability to successfully market current and new products, exposure to product liability and legal proceedings and investigations, changes in governmental laws and related interpretation thereof, including on reimbursement, intellectual property protection and regulatory controls on testing, approval, manufacturing and marketing, perceived or actual failure to adhere to ethical marketing practices, investments in and divestitures of domestic and foreign companies, unexpected growth in costs and expenses, failure to recruit and retain the right employees, and failure to maintain a culture of compliance.

For an overview of some, but not all, of the risks that could adversely affect Novo Nordisk's results or the accuracy of forward-looking statements in this Annual Report 2019, reference is made to the overview of risk factors in 'Managing risks to protect value' of this Annual Report 2019.

Unless required by law, Novo Nordisk is under no duty and undertakes no obligation to update or revise any forward-looking statement after the distribution of this Annual Report 2019, whether as a result of new information, future events or otherwise. •

Research and development

→ In 2019, we made significant progress in research and development pipeline, reaching several important regulatory milestones. Key development projects are highlighted below, along with a pipeline overview of compounds in clinical development. Further details on clinical trials can be found in company announcements and press releases published by Novo Nordisk during 2019, available at novonordisk.com

Diabetes care

Regulatory events
We submitted a New Drug Applications (NDA) to the US Food and Drug Administration (FDA) for oral semaglutide, a once-daily glucacon-like peptide-1 (GLP-1) receptor agonist, as a treatment to improve glycaemic control in adults with type 2 diabetes. This resulted in FDA approval in September 2019, of the first GLP-1 in a tablet, Rybelsus®. The approval was based on the phase 3a PIONEER development programme, which included 9,543 adults with type 2 diabetes. We launched Rybelsus® in the US in the fourth quarter of 2019.

A second NDA was submitted for oral semaglutide and a supplementary NDA (sNDA) for Ozempic® (once-weekly injectable semaglutide), seeking approval for a separate indication for cardiovascular risk reduction in adults with type 2 diabetes. These applications are based on results from two cardiovascular outcomes trials (CVOTs) evaluating the effects of adding semaglutide or placebo to standard of care on the risk of cardiovascular events, namely, PIONEER 6 with oral semaglutide and SUSTAIN 6 with Ozempic®. On the basis of the submitted data, Ozempic® was approved in the USA for cardiovascular risk reduction in people with type 2 diabetes. The Rybelsus® US label was updated with additional results from the PIONEER 6 trial.

On 31 January the committee for medicinal products for human use (CHMP) under the EMA adopted a positive opinion, recommending marketing authorisation for Rybelsus® (oral semaglutide) for the treatment of adults with type 2 diabetes. We expect to receive final marketing authorisation from the European Commission in the beginning of second quarter of 2020.

Based on the ELLIPSE trial, we obtained a label expansion for Victoza® which now includes an indication for the use in children and adolescent, aged 10-17 with type 2 diabetes in the US and Europe.

Clinical progress
The SOUL trial was initiated, a dedicated diabetes cardiovascular outcome trial, aiming to confirm the cardiovascular benefits of oral semaglutide and expand the scientific evidence base of semaglutide. The SOUL trial is expected to enrol approximately 9,600 people.

Three phase 3b trials were initiated with subcutaneous (sc) once-weekly semaglutide: SUSTAIN FORTE, with the objective to compare and assess the efficacy and safety of sc semaglutide 2 mg compared to sc semaglutide 1 mg in people with type 2 diabetes. FOCUS, a diabetic retinopathy outcomes trial, with the objective to assess the long-term effects of sc semaglutide in people with type 2 diabetes. Lastly, FLOW, a diabetic nephropathy outcomes trial, with the objective of assessing the effect of sc semaglutide on the progression of renal impairment in people with type 2 diabetes and chronic kidney disease.

Furthermore, Novo Nordisk completed a phase 2 trial with the combination of anti-IL-21 and liraglutide in people with newly diagnosed type 1 diabetes. The trial demonstrated statistically significantly improved beta cell function with anti-IL-21 in combination with liraglutide compared to placebo. Together with regulatory authorities, Novo Nordisk is evaluating next steps.

Lastly, Novo Nordisk completed the 26-week phase 2 trial with insulin icodec (previously named LAI287). Insulin icodec is anticipated to be the first once-weekly insulin and have similar glucose-lowering effect and safety profile to once-daily insulin glargine U100. Based on the phase 2 results, Novo Nordisk plans to initiate a phase 3 clinical trial programme in second half of 2020.

Obesity care

Clinical progress
We initiated a phase 2 trial for the long-acting amylin analogue AM833, intended for chronic weight management with a once-weekly subcutaneous administration.

Biopharm

Regulatory events
We obtained approval of Esperoct® (the brand name for N8-GP) in the US, the EU and Japan for prophylaxis and on-demand treatment of all age groups, in the EU above 12 years of age, of haemophilia A patients.

In addition, the regulatory file was submitted for the once-weekly growth hormone derivative, somapacitan, for the treatment of adult growth hormone deficiency, to the US FDA and EMA.

Clinical progress
We initiated the phase 3 programme (REAL 4) for somapacitan in children with growth hormone deficiency.

Furthermore, we initiated the explorer7 and explorer8 phase 3 clinical trials with subcutaneous prophylactic treatment of concizumab in people with haemophilia A or B with inhibitors and a parallel trial in haemophilia A or B patients without inhibitors. The objective of these trials is to establish the safety and efficacy of once-daily subcutaneous concizumab as a pen device based on prophylactic treatment to reduce the number of bleeds.

We initiated the phase 1/2 trial for Mim8. Mim8 is a next-generation factor VIII mimetic bi-specific antibody for subcutaneous prophylaxis of haemophilia A regardless of inhibitor status.

Other serious chronic diseases

Clinical progress
Gilead Sciences, Inc. and Novo Nordisk established a collaboration on clinical trial activities, by combining compounds from their respective pipelines in non-alcoholic steatohepatitis (NASH). The clinical trial is a proof-of-concept study combining Novo Nordisk's semaglutide and Gilead's small molecules; the FXR agonist cilofexor and the ACC inhibitor firsocostat for the treatment of people with NASH. Results are expected in the first half of 2020.

Finally, we initiated the first human dose trial (phase 1) for a subcutaneous PCSK9i. The trial is designed as a dose escalation trial with the aim to establish the safety, tolerability and pharmacokinetics of PCSK9i. The trial will form the basis for a review of the options for further drug development of a PCSK9i within the cardiometabolic space. •

Social performance

→ Novo Nordisk accounts for social performance on three dimensions: patients, employees and responsible business in pursuit of the ambition to be a sustainable business. Policies, actions and governance oversight are in place to prevent any unwanted impacts and promote social progress through global access to healthcare, a safe, healthy and inclusive working environment with equal opportunities for all, business conduct with respect of others´ integrity and human rights, and financial contributions to communities where Novo Nordisk operates.

Patients

Novo Nordisk is committed to driving change to defeat diabetes and other serious chronic diseases. To fulfil this purpose, Novo Nordisk pioneers scientific breakthroughs, expand access to our medicines, and work to prevent and ultimately cure disease.

In 2019, Novo Nordisk provided medical treatment to an estimated 30.0 million people with diabetes worldwide, compared with 29.2 in 2018. This 3% increase was primarily driven by sales of long-acting, premix and fast-acting insulins and GLP-1 products.

Through Novo Nordisk's Access to Insulin Commitment, the company guarantees to provide low-priced human insulin to governments in the poorest parts of the world and selected humanitarian organisations at a ceiling price of USD 4 per vial. As of 2019, the guarantee is expanded to include an additional 29 middle-income countries. This means that a total of 78 countries, as well as selected humanitarian organisations, can benefit from this guarantee. An estimated 2.9 million people were treated with insulin under this commitment in 2019, of which approximately 200,000 people were reached through sales to humanitarian organisations. In 2019, the average price the insulin was sold at equals USD 0.12 per patient per day. Beyond this commitment, Novo Nordisk sold human insulin at or below the ceiling price in other countries, reaching an estimated additional 2.2 million people in 2019.

Novo Nordisk has several initiatives, programmes and partnerships focused on increasing access to care all over the world. See novonordisk.com.

Novo Nordisk takes a patient-centred approach in its care delivery model and learns with patients. For additional information, see the 'Our Business section' and novonordisk.com.

Employees

Novo Nordisk aims to be an attractive employer that offers a safe and healthy, inclusive and engaging working environment in which all employees have equal opportunities to realise their potential. At the end of 2019, the total number of employees was 43,258, corresponding to 42,703 full-time positions, which is a less than 1% increase compared with 2018. The underlying growth in employees was mainly driven by Region China. Employee turnover decreased from 11.7% in 2018 to 11.4%.

Novo Nordisk's responsibility to respect labour rights applies to our global operations as a global minimum standard of business conduct. In 2019, the Global Labour Code of Conduct was revitalised and reinforced to ensure alignment with Novo Nordisk's Business Ethics Compliance Framework, which includes respect of human rights. The Code of Conduct describes expected global minimum labour rights requirements for Novo Nordisk employees including the principles concerning fundamental rights in the eight ILO Core Conventions and labour rights as stipulated in the International Bill of Human Rights. Minimum paid maternity leave is increased from 12 to 14 weeks globally and a right to paid paternity leave is introduced. Moreover, guidance to avoid forced and bonded labour/child labour and young workers is better described, the right to social security is affirmed, and life insurance for all employees is introduced. For more information see novonordisk.com.

In addition, Novo Nordisk entered a 5-year living wage programme with an external global non-profit business network and consultancy. The objective is to ensure that all employees are paid a living wage, i.e. adequate to purchase basic goods and services necessary to achieve a basic standard of living, based on calculations of living wages in the countries we operate in. An analysis indicated that this is the case.

By the end of 2019, the gender distribution among managers was 60% men and 40% women, unchanged from 2018.

Through 2019 diversity and inclusion have been strategic and tactical priorities for Novo Nordisk. The launch of the Diversity Aspiration of achieving gender balance at all managerial levels and the Diversity Action Plan with new guidelines and flexible working conditions have created direction towards becoming a more inclusive company. Novo Nordisk acknowledges the importance of leadership role modelling inclusive behaviour to lead a sustainable work place where everyone is able to perform at their best. The strong stance on diversity and inclusion will continue in 2020 with focus on realising continuous impact from the initiatives.

Novo Nordisk is committed to ensuring fair and equal treatment, opportunities – and pay – for all employees regardless of gender. In 2019, we conducted a study on gender and equal pay covering more than 50 countries and over 25,000 employees in order to reveal any differences in pay level or annual bonus due to gender. In a few locations, we identified some differences that need to be further investigated, and if due to gender, corrected. The equal pay study will be repeated in 2020 to ensure a continued focus.

The average frequency rate of occupational accidents with absence was 2.2 per million working hours in 2019 compared with 2.4 in 2018. In 2019, Novo Nordisk had one work-related fatality compared with none in 2018. Novo Nordisk works with a zero-injury mindset and remains committed to continuously improving safety performance. Employees are encouraged to always make the safe choice, and it is emphasised that safety behaviour is part of the company values. →

Responsible business

Measures are taken to ensure that Novo Nordisk conducts its business in a responsible way, in accordance with the Novo Nordisk Way.

Business ethics, data privacy and human rights

In Novo Nordisk Business Ethics, Data Privacy and Human Rights is about acting with integrity and in compliance with the Novo Nordisk Way, the Business Ethics Code of Conduct as well as international and local standards for responsible business conduct.

Training in Business Ethics is mandatory and a high priority. Annual Business Ethics training is required for all employees, including new hires. Business Ethics training is therefore a key element of the onboarding programmes. In 2019, 99% of all relevant employees completed and documented their training. This high level is attributed to the constant focus on and communication by senior management of the importance of business ethics compliance. In 2019, 34 business ethics reviews were completed with 87 findings, compared with 33 reviews with 113 findings in 2018. Based on the completed business ethics reviews, it is Group Internal Audit's assessment that the business ethics compliance level is sound. Management action plans and closure of findings progressed as planned, and there were no overdue Management actions or findings at the end of the year.

During 2019 Novo Nordisk developed and approved its internal corporate requirements on Data Privacy and Human Rights which is operationalised in the Novo Nordisk's Business Ethics Code of Conduct. The requirements set out guidance and expectations to all employees. Furthermore, Data Privacy and Human Rights risks ('risks to people') were integrated into the Business Ethics risk methodology, as the basis for risk management in the Novo Nordisk global organisation as of 2020.

Progress was made in regard to management of salient human rights issues beyond those already addressed by existing global standards and programmes. In 2019, for patient safety and the right to health, we further increased the share of Novo Nordisk subsidiaries providing access to safety reporting with local language directions on local websites, from 90% in 2018 to 96% in 2019. For availability and affordability aspects of the right to health, see progress above. To mitigate risks of exploitation and ensure respect for donors' right to free and informed consent among others, we evaluated and delisted human biosample providers and reduced the ratio of the unevaluated providers we use, from 12% in 2018 to 6% in 2019. We have also developed a risk-based global due diligence system. The Responsible Sourcing standards were updated in December 2019 to strengthen its human rights coverage. For our due diligence on modern slavery risks, see Novo Nordisk's Modern Slavery Statement at novonordisk.com.

In 2019, a total of 236 supplier audits, undertaken by Novo Nordisk's own organisation, were conducted to assess compliance levels with the company's standards for suppliers. Of these, 27 were responsible sourcing audits and one critical finding was issued regarding working hours. An action plan with deadlines has been agreed upon and a re-audit is planned for 2020.

Product quality

Novo Nordisk had four product recalls from the market in 2019, compared with three in 2018. As in 2018, none of the recalls were critical. Local health authorities were informed in all instances to ensure that distributors, pharmacies, doctors and patients received appropriate information.

In 2019, as in 2018, there were no failed inspections by regulatory authorities among those resolved at year-end. In 2019, 66 inspections were conducted at Novo Nordisk's sites, at clinics conducting investigations for Novo Nordisk or for voluntary ISO 9001 certification, compared with 75 inspections in 2018. At year-end, 44 inspections had been passed and 22 were unresolved. Follow up on unresolved inspection continues in 2020.

Responsible tax approach

Novo Nordisk's tax approach is to pursue a competitive tax level in a responsible way. As a general rule, Novo Nordisk subsidiaries pay corporate taxes in the countries in which they operate and where business activity generates profits, earned in accordance with international transfer pricing rules. A competitive tax level implies achieving a tax level around the peer-group average. The company has a balanced tax risk profile and does not engage in tax avoidance activities. See 'Note 2.6 income taxes and deferred income taxes' and 'Note 9.8 total tax contribution'.

To create certainty regarding tax payments, Novo Nordisk has applied for advance pricing agreements (APAs) in key countries. The ambition is to have APAs covering more than two-thirds of total sales. An APA is an up-front agreement between the tax authorities in two or more countries, covering the pricing methodologies for relevant intercompany transactions, thereby determining the level of taxable income for the countries in question. An APA typically covers a future period of five tax years.

Novo Nordisk has APAs in place covering intercompany transactions with the US, Canada, Japan, India and China corresponding to more than 60% of total sales. Novo Nordisk's tax strategy is endorsed by the Board of Directors.

Long-term social targets

Novo Nordisk has two long-term social targets related to employee engagement and trust.

The level of employee engagement and commitment to the company's values remains high. In the annual employee survey, conducted in the second quarter of 2019, 91% of employees responded positively to a set of questions to measure the level of engagement, same as in 2018. The target is at least 90%.

The level of trust in Novo Nordisk among key stakeholders - people with diabetes, general practitioners and diabetes specialists - is an indicator of the extent to which the company lives up to stakeholders' expectations and the likelihood that they will trust, support and engage with the company. The company trust score, measured on a scale of 0-100, decreased to 78.2 from 84.5 in 2018. The decline in trust can best be explained by the increased scrutiny on pharma industry throughout 2019, in particular in regards to pricing, access and affordability of medicines, which continues to be reflected in media sentiment and social media conversations. The decline in trust is not unique to Novo Nordisk, but is a trend across the pharma sector. Data were collected between June and September 2019; a score between 70 and 80 is considered strong. The target is at least 80.

Read more details in the 'Consolidated social statement' and novonordisk.com. •

Environmental performance

→ Novo Nordisk has a bold and simple ambition: to have zero environmental impact. To get there we are adopting a circular mindset – designing products that can be recycled or re-used, reshaping our business practice to minimise consumption and eliminate waste, and working with suppliers who share our ambition. Our bold ambition is communicated through the new Circular for Zero environmental strategy. We measure our progress based on use of resources, emissions and waste.

Resources

In 2019, the energy consumption for operations decreased slightly compared with 2018. There is a continued focus on energy-saving projects within production, and projects implemented in 2019 are expected to result in annual savings of 72,000 GJ.

Water consumption in production sites in 2019 increased slightly by 2% compared with 2018. Three facilities in Algeria, Brazil and China are in areas with water stress or high seasonal variability. These sites accounted for 14% of the total water consumption in 2019, and there is a continued focus on reducing water consumption across these sites.

As part of the new Circular for Zero strategy, procurement is collaborating with suppliers to reduce environmental impact across the value chain via a gradual shift to sustainably sourced materials.

Novo Nordisk is also working to ensure existing and new products are fit for circularity, and, in 2019, a Circular Design Guideline was developed within R&D to reduce the environmental footprint of our devices.

Emissions

In 2019, total emissions across operations and transportation were 306,000 tons CO_2, which is a 10% increase compared to 2018, primarily due to a significant increase in emissions from product distribution. This was due to an increase in distributed volume, and the fact that there was more air freight than sea freight due to supply and market-driven challenges. In 2020, Novo Nordisk has focus on ensuring a shift to sea freight and to ensure efficient production planning to reduce emissions from product distribution.

Emissions from production remained stable compared to 2018. At the end of 2019, the conversion of Asnæs power plant in Kalundborg, Denmark was completed in collaboration with the energy company, Ørsted. This means that future heat and steam for our largest production site will come from sustainable biomass instead of fossil fuels.

With the use of bionatural gas and steam based on biomass in Denmark, as well as power from renewable sources across global production sites, it is expected that more than 75% of the total energy use for production sites will be based on renewable sources in 2020.

Emissions from global offices and labs decreased by 15,000 tons CO_2 in 2019. As a part of the new Circular for Zero strategy, all offices and labs will source renewable power by 2030. In 2019, there was a significant reduction in CO_2 emissions from the R&D site in Beijing, due to sourcing of wind power.

Emissions from company cars remained stable at 62,000 tons CO_2 in 2019. In order to decrease emissions from company cars and encourage the global shift to electric vehicles, Novo Nordisk joined EV100 this year. This partnership means that Novo Nordisk commits to transitioning the entire fleet of approximately 8,000 vehicles to hybrid and electric vehicles by 2030.

Emissions from business flights are estimated to be 65,000 tons CO_2 in 2019, a small increase compared to 2018. In 2019, Novo Nordisk invested in 55 new, larger video conferencing systems and five immersive video systems to enhance the conferencing experience. In 2019, over 90 major events were hosted from Livestream, including updates from Executive Management.

An ambitious circular supplier program, 'Suppliers for Zero', was initiated as part of the Circular for Zero strategy. Twelve key suppliers have enrolled in 2019 of which four have committed to achieving zero CO_2 emissions.

Waste

Compared to 2018, waste decreased by 13% in 2019. This was due to a decreased amount of both ethanol waste and organic residues from the production of API in Kalundborg.

Overall, 93% of waste generated from production is recycled, used for biogas production or incinerated in waste-to-energy plants. In 2019, 1% of total waste was sent to landfill.

One strategic focus of the Circular for Zero strategy is to investigate the end-of-life challenge of devices following patient use, for the materials can be recovered and recycled into new products.

Long-term environmental targets

In 2019, 76% of power for production sites was sourced from renewable energy. In 2019, Novo Nordisk finalised an agreement in the United States to have solar energy cover power consumption across all US operations. This agreement is effective as of 2020. With this solution, Novo Nordisk will achieve its target to source 100% renewable power at all production sites in 2020.

In 2019, total emissions across operations and transportation was 306,000 tons CO_2. Emissions are expected to decrease significantly in 2020 due to various renewable energy projects, including solar power across all US operations, wind power in Europe and green steam in Denmark. Emissions from transportation are also expected to decrease due to a company car policy that encourages transition to hybrid and electric vehicles and through collaboration with EV100, (The Climate Group's global initiative for electrical vehicles). The target is to have zero emissions from operations and transportation by 2030 and it covers production sites, over 80 offices and laboratories, company cars, business flights and product distribution and was approved by the Science Based Target Initiative.

Read more details in the 'Consolidated environmental statement' and novonordisk.com. For a full breakdown of climate and water impacts please refer to the publicly available Novo Nordisk CDP disclosures.

Details about Circular for Zero, including R&D developments and procurement can be found on novonordisk.com. •

Managing risks to protect value

For Novo Nordisk to continue to be a sustainable business, we must anticipate and adapt to changes in our markets to create new strategic opportunities. Managing the associated risks rigorously and systematically is key in order for us to create and protect value over the short, medium and long term.

→ Scenario and risk-thinking exercises are part of our strategic planning process. They include analyses of market dynamics as well as socioeconomic and political developments that present risks or opportunities for our business.

Balancing affordable care and commercial value
In the short and medium term, we zoom in on trends in the healthcare ecosystem we rely on. For example, in the diabetes care market, payers continue to put pressure on costs of insulin and are unwilling to pay a premium for incremental innovation.

For our business, the risks are reduced profit from lower prices, and the damage to brand trust could be significant if we were seen to be profiteering from the situation.

The US healthcare system's structural challenges continue to be a risk to our business as well. Affordable access to essential medicines is a big issue for the approximately five percent of Americans who are uninsured. This will be front and centre in the 2020 elections. Meanwhile, US market dynamics are forging new healthcare alliances that affect negotiations between payers and providers of medicines. Access to affordable care is not just an US issue. Globally, healthcare systems are struggling to provide quality care at a sustainable cost, while the burden of chronic disease keeps rising.

Digital disruption
New digital technologies in healthcare are offering more personalised treatment and better management of chronic diseases. This is an opportunity to deliver more value to our stakeholders and help patients live a life free from the limitations of their disease.

But the rise of digital healthcare brings risks of its own. New entrants and disruptive competitors, including large tech players as well as new start-ups, will be able to leverage big data analytics to address some of the inefficiencies in the current healthcare systems. This will affect some of our markets, and we will have to act to avoid losing market share.

Artificial Intelligence (AI) and automation in the sector should make us more productive and speed up our time-to-market. Today, we are running several AI and automation pilots to accelerate innovation and harvest efficiency gains. Highly agile technology sector companies could enter with disruptive approaches to health care. AI is associated with issues such as unpredictability of future uses.

Moreover, new collaborations with personal healthcare players bring new risks – particularly around increased complexity, shared commercial arrangements and data regulation. The personal healthcare apps need to be tested for quality and reliability. If they do not work properly and give the correct guidance, they could present a health risk to the patients using our products.

Facing up to environmental risks
Across all of these trends runs a growing and widely acknowledged concern for the global environment, particularly in relation to climate change.

We are preparing for the risks and opportunities which will arise from changing weather patterns, sea level rises and other climate impacts. As recommended by the Task Force on Climate-related Financial Disclosures, we are integrating climate change scenarios to identify short, medium and long-term risks within our production and supply chain to ensure a steady supply of medicine to patients.

Rigorous and robust risk management
A rigorous approach to enterprise risk management helps our management protect and enhance the value of our tangible and intangible assets.

We are continually exposed to risks throughout our value chain – from early discovery of new, promising molecules to the production and delivery of medicines to patients. Some risks are inherent in the pharmaceutical industry, such as delays or failures of potential new medicines in the R&D pipeline. Other risks such as supply disruptions and competitive threats are well-known to any manufacturing company with global production.

We will never compromise on product quality, patient safety and business ethics: these are front and centre of our enterprise-wide risk management set-up. We apply a two-way lens and assess risks to people as well as potential financial loss and reputational damage.

Executive Management and the Board of Directors review a 'heat map' of our biggest risks biannually. This map is based on insights from management teams in all organisational areas and includes risks that could cause significant disruptions to the business over a three-year horizon. There is a more detailed overview of our key risks in the following overview. →

Novo Nordisk's key risks

What is the risk?	What is the impact?	What actions are taken?
Delays or failure of products in pipeline		
The development of a product candidate can take more than 10 years and may be delayed, or even abandoned, at substantial expense. The process involves non-clinical tests and clinical trials, commercial product planning and regulatory approval, including approval of production facilities.	Patients would not benefit from innovative treatments and Novo Nordisk's future position as a leader could be jeopardised if we were unable to bring innovative products to market. Any delays or failures of new products could have an adverse impact on sales, profits and market position.	Insights into patients' unmet needs inform the selection of new product candidates. Clinical trials are run to demonstrate safety and efficacy. Assessments of commercial viability determine progress through stage gates. Consultations are held with regulators to review clinical findings and obtain guidance on clinical programmes.
Supply disruptions		
Failures or delays may occur at production sites or throughout the extensive global supply chain, relating to procurement of ingredients and components as well as distribution of products. This could be due to breakdowns or quality failures at company sites or at key suppliers' production facilities.	If Novo Nordisk were prevented from supplying products to markets, pharmacies and hospitals could face product shortages, with potential implications for patients' daily treatment needs.	Internal quality audits and annual inspections by regulatory authorities document GMP compliance, and alternative supply sites for critical raw materials and back-up facilities are in place for key production plants and safety inventories, to prevent and respond to accidents or other disruptions to supplies. Global production reduces supply risks.
Competition and market developments		
Governments and private payers take measures to limit spending on medicines by driving down prices, demanding higher rebates and restricting access to and reimbursement of new products. In some markets, political instability, conflict or weak enforcement of the rule of law may affect sales. At any time, established or new competitors may bring new products to market or obtain label change for marketed products, leading to increased competition.	Patients would not have access to the clinical benefits of new products if Novo Nordisk were prevented from launching new products due to reimbursement restrictions and newer products could be niched for use in narrow sub-populations. Across all markets, product categories could face intensified competition and in these categories lower realised prices would be expected.	Clinical trial data demonstrate the added value of new products. Real-world evidence is introduced to show health economic benefits. Negotiations with payers aim to ensure patients' access to the clinical benefits of new products.
Compromises to product quality and patient safety		
Product quality and patient safety may be compromised if, for example, a production facility is found to be in noncompliance, a product is not within specifications, or if side effects that were not detected in clinical trials become apparent when a product is used for a longer period of time.	Patients' health and lives could be put at risk and Novo Nordisk's reputation and licence to operate could be damaged if regulatory compliance is not ensured.	A robust quality management system, improvement plans and systematic senior management reviews are in place. Authority inspections and internal quality audits are conducted at production sites. When issues are found within the production process of clinical or marketed products, root causes are identified and corrected and, if necessary, products are recalled.

What is the risk?	What is the impact?	What actions are taken?
IT security breaches		
Disruption to IT systems, such as virus attacks, and breaches of data security, may happen across the global value chain, where reliable IT systems and infrastructure are critical for the company's ability to operate effectively.	Patients' or other individuals' privacy could be compromised if confidential information were disclosed, and breaches of IT security could have a severe impact on Novo Nordisk's ability to maintain operations and hence on its financial situation. In production environments, for example, breaches of IT security could impact Novo Nordisk's ability to produce and safeguard product quality.	IT security technologies and controls are in place to help prevent intruders from causing damage to systems and gaining access to critical data and systems. Continuity plans are in place in the event of non-availability of IT systems. Awareness campaigns, access controls and intrusion detection and prevention systems have been implemented. Company-wide internal audits of IT security controls are conducted to detect and mitigate any breaches.
Currency impact and tax disputes		
Exchange rate fluctuations, disputes with tax authorities and changes to tax legislation are external factors. Novo Nordisk's foreign exchange risk is most significant in USD, CNY and JPY, while the EUR exchange rate risk is regarded as low due to Denmark's fixed-rate policy towards EUR.	Novo Nordisk's cash flow, statement of comprehensive income and balance sheet can be impacted significantly by currency fluctuations. Changes to tax legislation or loss of major tax cases could result in significant tax adjustments and fines, and could lead to a higher-than-expected tax level for the company.	Expected future cash flows for selected currencies are hedged to mitigate short-term impact on earnings and cash flow. An integrated treasury management system is in place. Applicable taxes are paid in jurisdictions where business activity generates profits. Multi-year advance pricing agreements with tax authorities have been negotiated for more than 60% of our sales in the US, China and Japan. Hedging activities and calculation of transfer pricing are subject to internal controls and audit.
Breach of legislation or ethical standards		
In a tightly regulated industry, breach of legislation, industry codes or company policies may occur in connection with business interactions, such as with healthcare professionals, business partners or other stakeholders. Operations in complex socioeconomic and cultural contexts could present risks of non-compliance with Business Ethics standards including human rights and personal data protection.	Breaches of legislation or ethical standards could compromise the integrity, dignity and rights of the individuals involved and could cause damage to Novo Nordisk's reputation and financial situation and could expose Novo Nordisk to investigations, criminal and civil sanctions and other penalties.	Compliance programmes address adherence, such as the Business Ethics Compliance Framework, supported by due diligence, standard procedures and training to ensure compliance with laws, international standards and regulations and prevent breaches of standards, with legal defence where relevant. Compliance with business ethics standards is subject to internal audit. Action is taken immediately on substantiated non-compliance.
Loss of intellectual property rights		
The validity of patents that are critical for protecting Novo Nordisk's commercial products and candidates in the R&D pipeline may be challenged by competitors.	Loss of exclusivity for existing and pipeline products could impact Novo Nordisk's market position, sales and profits.	Throughout the process of drafting, filing and prosecuting a patent application, internal controls are in place to minimise vulnerability to invalidity actions. Patents at high risk of invalidity challenge are proactively identified to defend Novo Nordisk's intellectual property rights.

Shares and capital structure

Through open and proactive communication, the company aims to provide the basis for fair and efficient pricing of its shares.

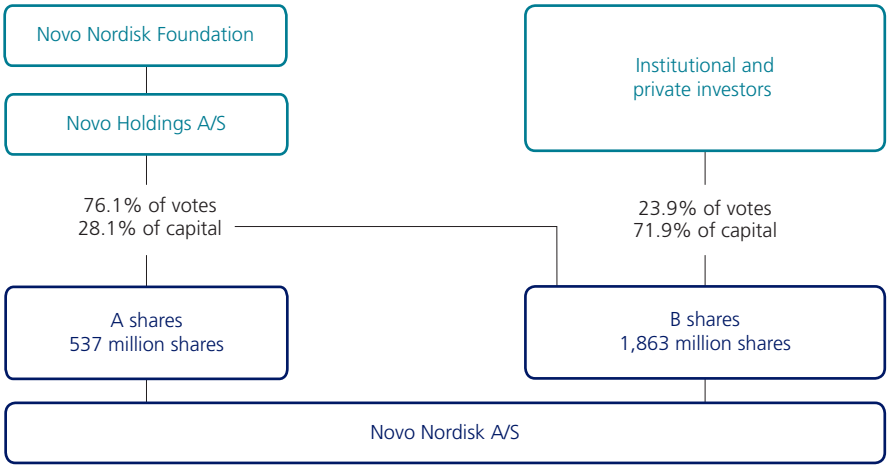
Share capital and ownership
Novo Nordisk's total share capital of DKK 480,000,000 is divided into an A share capital of nominally DKK 107,487,200 and a B share capital of nominally DKK 372,512,800. Novo Nordisk's B shares are listed on Nasdaq Copenhagen and on the New York Stock Exchange (NYSE) as American Depository Receipts (ADRs). Novo Nordisk's A and B shares are calculated in units of DKK 0.20, resulting in 537 million A shares and 1,863 million B shares. Each A share carries 200 votes and each B share carries 20 votes.

The company's A shares are not listed and are held by Novo Holdings A/S, a Danish public limited liability company wholly owned by the Novo Nordisk Foundation. The Foundation has a dual objective: to provide a stable basis for the commercial and research activities conducted by the companies within the Novo Group (of which Novo Nordisk A/S is the largest), and to support scientific and humanitarian purposes. According to the Articles of Association of the Foundation, the A shares cannot be divested. Special rights attached to A shares include pre-emptive subscription rights in the event of an increase in the A share capital and pre-emptive purchase rights in the event of a sale of A shares, while B shares take priority for liquidation proceedings. A shares take priority for dividends below 0.5%, and B shares take priority for dividends between 0.5 and 5%. However, in practice, A shares and B shares receive the same amount of dividend per share. As of 31 December 2019, Novo Holdings A/S also held a B share capital of nominally DKK 27,152,800. Novo Holding A/S's total ownership is reflected in the following chart of ownership structure.

There is no complete record of all shareholders; however, based on available sources of information about the company's shareholders, as of 31 December 2019 it is estimated that shares were geographically distributed as shown in the chart 'Geographical split'. As of 31 December 2019, the free float of listed B shares was 90.1% (of which approximately 11.9% are listed as ADRs), excluding the Novo Holdings A/S holding and Novo Nordisk's holding of treasury shares which, as of 31 December 2019, was DKK 36,780,840 nominally. For details about the share capital, see note 4.1.

Capital structure and dividend policy
Novo Nordisk's Board of Directors and Executive Management consider that the current capital and share structure of Novo Nordisk serves the interests of the shareholders and the company well, providing the strategic flexibility to pursue Novo Nordisk's vision. Novo Nordisk's capital structure strategy offers a good balance between long-term shareholder value creation and competitive shareholder return in the short term. Novo Nordisk's guiding principle is that, after the funding of organic growth opportunities, investments and acquisitions, any excess capital should be returned to investors. The company's dividend policy applies a pharmaceutical industry benchmark to ensure a competitive payout ratio for dividend payments, which are complemented by share repurchase programmes. The final dividend for 2018 paid in March 2019 was equal to DKK 5.15 per A and B share of DKK 0.20 as well as for ADRs. The total dividend for 2018 was thus DKK 8.15 per A and B share of DKK 0.20, corresponding to a payout ratio of 50.6%, which is in line with the 2018 pharma peer group average of 49.4%. In August 2019, an interim dividend was paid equalling DKK 3.00 per A and B share of DKK 0.20 as well as for ADRs. For 2019, the Board of Directors will propose a →

Ownership structure



Note: Treasury shares are included, however, voting rights of treasury shares cannot be exercised

final dividend of DKK 5.35 to be paid in March 2020, equivalent to a total dividend for 2019 of DKK 8.35 and a payout ratio of 50.5%. The company expects to distribute an interim dividend in August 2020, and further information regarding such interim dividend will be announced in connection with the financial report for the first six months of 2020. Dividends are paid from distributable reserves. Share premium is a distributable reserve and any former share premium reserve has been fully distributed. Novo Nordisk does not pay a dividend on its holding of treasury shares.

Share repurchase programme for 2019/2020

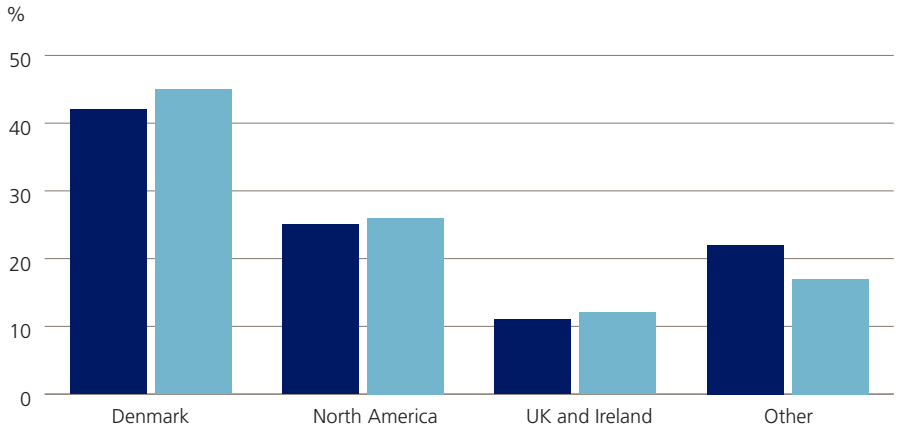
During the twelve-month period beginning 1 February 2019, Novo Nordisk repurchased shares worth DKK 15 billion. The share repurchase programme has primarily been conducted in accordance with the safe harbour rules in the EU Market Abuse Regulation (MAR). For the next 12 months, Novo Nordisk has decided to implement a new share repurchase programme. The expected total repurchase value of B shares amounts to a cash value of up to DKK 17 billion. The total programme may be reduced in size if significant product in-licensing or bolt-on acquisition opportunities arise during 2020. Novo Nordisk expects to conduct the majority of the new share repurchase programme according to the safe harbour rules in MAR. At the Annual General Meeting in March 2020, the Board of Directors will propose a further reduction in the company's B share capital, corresponding to approximately 2% of the total share capital, by cancelling 50,000,000 treasury shares. After the implementation of the share capital reduction, Novo Nordisk's share capital will amount to DKK 470,000,000 divided into A share capital of DKK 107,487,200 and B share capital of DKK 362,512,800.

Share price development

Novo Nordisk's share price increased by 29.8% between its 2018 close of DKK 297.9 and the 31 December 2019 close of DKK 386.65. For comparison purposes, the Danish OMXC25 stock index increased by 26% and the pharma peer group increased by 13% during 2019. The total market value of Novo Nordisk's A and B shares, excluding treasury shares, was DKK 909,178,012,657 as of 31 December 2019. •

Geographial split*

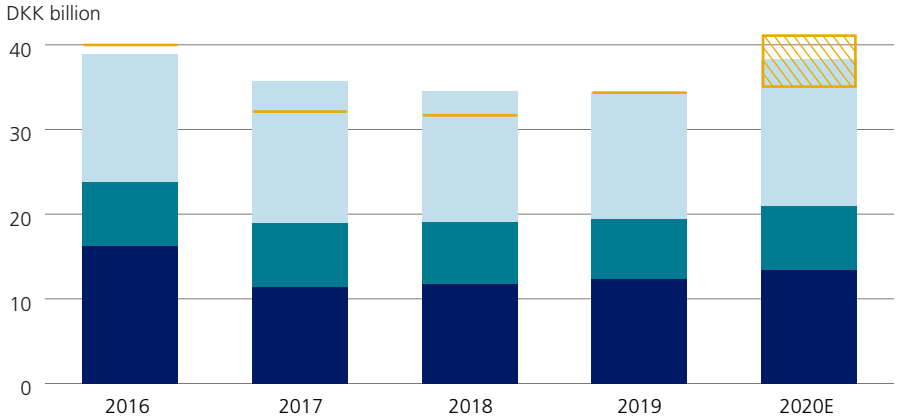
% of share capital ■ 2019 ■ 2018



*Using shareholder registered home countries

Cash distribution to shareholders

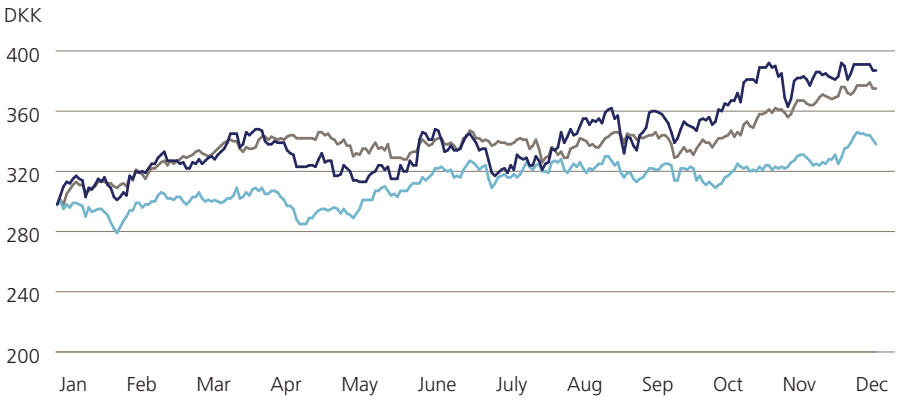
■ Dividend for prior year ■ Interim dividend
■ Share repurchases in the calendar year — Free cash flow



Share price performance 2019

Novo Nordisk share price and indexed peers[1]

■ Novo Nordisk ■ Pharmaceutical industry index* ■ OMXC25



*Pharmaceuticals index comprises: AstraZeneca, Bristol-Myers Squibb, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Merck, Novartis, Pfizer, Roche, Sanofi and Novo Nordisk

1. OMX C25 and pharmaceutical industry development have been rebased to Novo Nordisk share price in January 2019

Corporate governance

The Board of Directors of Novo Nordisk focuses on good governance practices. In 2019, one new board member was appointed at the Annual General Meeting. Two members of Executive Management left Novo Nordisk after more than 20 years with the company and two new members of Executive Management were appointed.

Governance structure

Shareholders

The shareholders of Novo Nordisk have ultimate authority over the company and exercise their right to make decisions at general meetings. At the Annual General Meeting, shareholders approve the annual report and any amendments to the company's Articles of Association. Shareholders also elect board members and the independent auditor. Resolutions can generally be passed by a simple majority. However, resolutions to amend the Articles of Association require two-thirds of the votes cast and capital represented, unless other adoption requirements are imposed by the Danish Companies Act.

Novo Holdings A/S holds the majority of votes at general meetings. However, all strategic and operational matters are decided solely by the Board of Directors and Executive Management. Read more about the ownership structure of Novo Nordisk in 'Shares and capital structure'.

Board of Directors

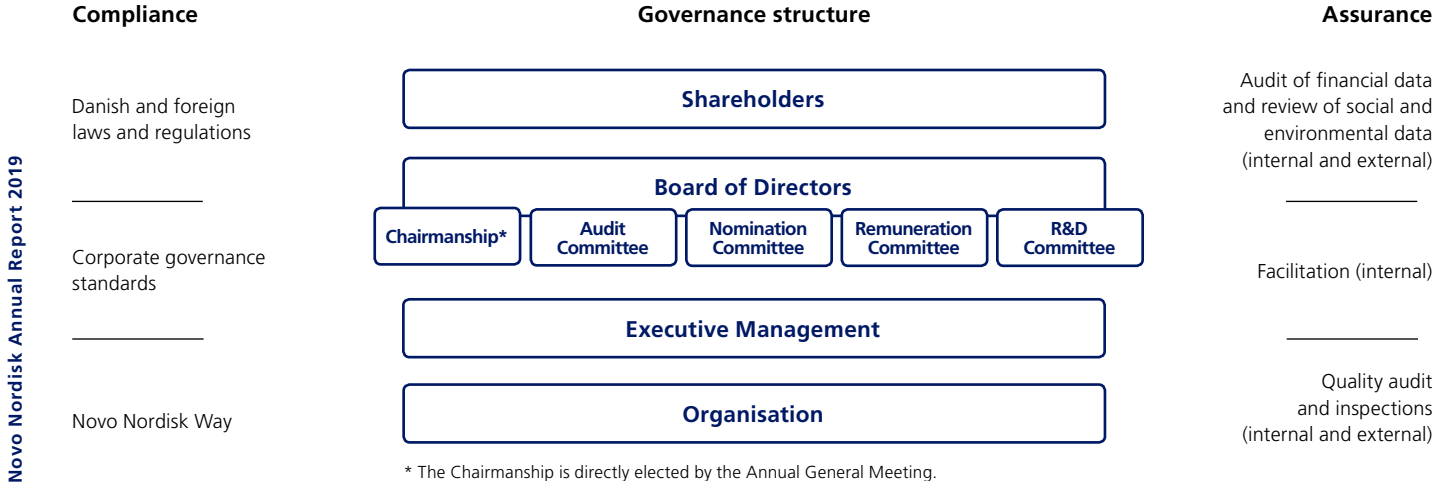
Novo Nordisk has a two-tier management structure consisting of the Board of Directors and Executive Management. The two bodies are separate, and no one serves as a member of both.

The Board of Directors supervises Executive Management, determines the company's overall strategy and follows up on its implementation, the performance, ensures adequate management and organisation and, as such, actively contributes to developing the company as a focused, sustainable, global pharmaceutical company. The Board of Directors may also distribute extraordinary dividends, issue new shares or repurchase shares in accordance with authorisations granted by the shareholders at the Annual General Meeting and recorded in the meeting minutes available at novonordisk.com/about_us.

Shareholder-elected board members serve for a one-year term and may be re-elected. Board members must retire at the first Annual General Meeting after reaching the age of 70. One board member is a member of the Board of Directors of Novo Holdings A/S, and one board member is chief executive officer of Novo Holdings A/S and may be regarded as representing the interests of the controlling shareholder, while seven of the nine shareholder-elected board members are independent as defined by the Danish Corporate Governance Recommendations.

Under Danish law, employees in Denmark may elect a number of board members equalling half of the shareholder-elected board members. Board members elected by employees serve for a statutory four-year term and have the same rights, duties and responsibilities as shareholder-elected board members. The employee-elected board members are up for election again in 2022. Read more about the members of the Board of Directors and at novonordisk.com/about_us. →

Corporate governance codes and practices



* The Chairmanship is directly elected by the Annual General Meeting.

As of 31 December 2019, the Board of Directors consisted of 13 members, nine of whom were elected by shareholders and four of whom were elected by employees based in Denmark. The Board of Directors met eight times during 2019. At the Annual General Meeting in March 2019, Laurence Debroux was elected as new member of the Board of Directors.

Nomination, self-evaluation and diversity

A proposal for election or re-election of shareholder-elected board members is presented by the Nomination Committee to the Board of Directors. When recommending candidates to be nominated by the Board, the Nomination Committee considers factors such as the balance between renewal and continuity, the desired competences and experience, the performance of the individual Board members, the ambition for diversity as well as independence considerations.

To support continued fulfilment of the Novo Nordisk Way, in the Board competence profile the Board of Directors has determined that the Board members should possess integrity, accountability, fairness, financial literacy, commitment and desire for innovation. Additionally, the following competences and experience should be represented on the Board: global business management, strategic operations and governance, healthcare industry and market access, research and development, technology and digitalisation, M&A and external innovation sourcing, people leadership and change management as well as finance and accounting, cf. the biographies of Board members in the overview 'Board of Directors'. The competence profile, which includes the nomination criteria, is available at novonordisk.com/about_us.

The Board of Directors conducts a self-evaluation every year. The self-evaluation includes all members of the Board and Executive Management. The chair has overall responsibility for conducting the self-evaluation. The self-evaluation is facilitated every third year by external consultants, who interview all members of the Board of Directors and Executive Management. For the subsequent two years, the self-evaluation is facilitated by the secretary of the Nomination Committee based on written questionnaires. The process evaluates topics such as board dynamics, board agenda and discussions, strategy, culture, executive succession, board composition and succession, potential over-boarding and training as well as the performance of the Chairmanship and the board committees. In addition, each member of the Board of Directors and Executive Management is provided with feedback from all other board members and executives on their individual performance.

In 2019, the Board evaluation was facilitated internally and, in general, revealed good performance by the Board and good collaboration between the Board and Executive Management. The process also resulted in continued focus on the implementation of the R&D strategy, on commercial execution and on being a sustainable company.

To ensure that discussions include multiple perspectives representing the complex, global pharmaceutical environment, the Board of Directors aspires to be diverse in gender and nationality.

In 2016, the Board of Directors adjusted its diversity ambition and set new targets with the aim of consisting, by 2020, of at least two shareholder-elected board members with Nordic nationality and at least two shareholder-elected board members with a nationality other than Nordic – and at least three shareholder-elected board members of each gender.

As of 31 December 2019, three shareholder-elected board members were female and six were male, while seven of the nine shareholder-elected board members were non-Nordic and two were Nordic. The company thus fulfilled its nationality ambition and its gender ambition. The Board of Directors will revisit its diversity ambition in 2020 and, if needed, adjust the numbers and parameters which are currently fulfilled.

In accordance with section 99b of the Danish Financial Statements Act, Novo Nordisk discloses current performance on diversity in the 'Social performance' section. Novo Nordisk's diversity policy is available at novonordisk.com.

Board committees

Chairmanship

The Chairmanship consists of the chair and the vice chair, both of whom are elected directly by the shareholders at the general meetings. At the Annual General Meeting in 2019, Helge Lund was re-elected as chair and Jeppe Christiansen was re-elected as vice chair. The Chairmanship assists the Board of Directors in the planning of Board meetings, employment of Executive Management and other assignments as decided by the Board.

In 2019, the Chairmanship particularly discussed commercial execution within the therapy areas and in different markets, partnering and acquisition to access external innovation as well as talent and leadership development, supervising the changes in Executive Management and development of the company culture.

Audit Committee

The Audit Committee assists the Board of Directors with oversight of the external auditors, the internal audit function, handling hotline complaints, financial, social and environmental reporting, business ethics compliance, information security, insurance coverage, special theme reviews and other tasks on an ad hoc basis, as specifically decided by the Board. All members have relevant industry expertise. For independence see table on meeting participation in 2019.

The Audit Committee is appointed by the Board and consists of:

- Liz Hewitt (chair; financial expert)
- Laurence Debroux (financial expert)
- Andreas Fibig
- Sylvie Grégoire
- Stig Strøbæk

In 2019, the Audit Committee focused particularly on reviewing and discussing work performed by internal and external auditors and held focused sessions on risks and internal controls in key areas such as North America Operations, Product Supply and International Operations. The Audit Committee also discussed key accounting policies and estimates, including provisions for sales rebates, indirect production costs and ongoing tax and legal cases. The Audit Committee also reviewed and discussed the status of Information Security and Business Ethics Compliance within Novo Nordisk. Finally, the Audit Committee recommended a preferred external auditor which is to be selected by the Annual General Meeting in 2021. →

Nomination Committee
The Nomination Committee assists the Board with oversight of the competence profile and composition of the Board, nomination of members and committees, the corporate governance of the company and other tasks on an ad hoc basis, as specifically decided by the Board.

The Nomination Committee is appointed by the Board and consists of:

- Helge Lund (chair)
- Sylvie Grégoire
- Kasim Kutay
- Mette Bøjer Jensen

In 2019, the Nomination Committee focused particularly on reviewing the composition of the Board and considered long-term succession planning. It also reviewed the desired competences to be represented on the Board.

Remuneration Committee
The Remuneration Committee assists the Board with oversight of the remuneration policy as well as the actual remuneration of board members, Board committees and Executive Management.

The Remuneration Committee is appointed by the Board and consists of:

- Jeppe Christiansen (chair)
- Brian Daniels
- Liz Hewitt
- Anne Marie Kverneland

In 2019, the Remuneration Committee focused particularly on conducting a general review of executive remuneration, including proposing changes to the base salary, the pension, the short-term cash-based incentive programme, the long-term share-based incentive programme, the shareholding requirement, etc., and on developing of a new Remuneration Policy to be approved by the Annual General Meeting and a new separate Remuneration Report to be presented to the Annual General Meeting.

Research & Development Committee
The Research & Development Committee assists the Board with oversight of the research and development strategy, the pipeline, the R&D organisation and other tasks on an ad hoc basis, as specifically decided by the Board.

The Research & Development Committee is appointed by the Board and consists of:

- Martin Mackay (chair)
- Brian Daniels
- Sylvie Grégoire
- Thomas Rantzau

In 2019, the Research & Development Committee focused particularly on reviewing the results of clinical trials and discussed potential additional research and development activities to further explore opportunities within subcutaneous and oral GLP-1 as well as competitor initiatives. In addition, the committee discussed the potential opportunities for addressing unmet needs in NASH. It also reviewed potential external research collaborations as well as acquisitions.

See the Corporate Governance Report or novonordisk.com/about_us for a more detailed description of the Board committees, their charters, details on members and full reports on the Board committees' activities in 2019.

Executive Management

Executive Management is responsible for overall day-to-day management, the organisation of the company, allocation of resources, determination and implementation of strategies and policies, direction setting, and ensuring timely reporting and provision of information to the Board of Directors and Novo Nordisk's stakeholders. Executive Management meets at least once a month. The Board of Directors appoints members of Executive Management and determines their remuneration. The Chairmanship reviews the performance of the executives.

To ensure the organisational implementation of the strategy, Executive Management has established a Management Board consisting of the chief executive officer, executive vice presidents and senior vice presidents.

As of 31 December 2019, Executive Management consisted of nine members including the chief executive officer. As of April 2019, Jesper Brandgaard retired from Novo Nordisk and Ludovic Helfgott was appointed executive vice president, head of Biopharm. As of August 2019, Lars Green resigned from Novo Nordisk and Monique Carter was appointed executive vice president, head of People & Organisation.

The three executives who are based outside Denmark and who have responsibility for Biopharm, International Operations and North America Operations, respectively, are not registered as executives with the Danish Business Authority.

Remuneration

Novo Nordisk's Remuneration Principles provide the framework for the remuneration of the Board and Executive Management. The Remuneration Principles were most recently changed in March 2019, where the Annual General Meeting approved amendments in order to reflect the fact that the Research & Development Committee had become a permanent Board committee and in order to ensure that Novo Nordisk is able to reclaim incorrect pay-outs of incentives based on a misstatement of data regardless of whether this originates due to wilful misconduct or gross negligence. Moreover, the Annual General Meeting approved the denomination of travel allowance in DKK instead of EUR. These principles are available at novonordisk.com/about-novo-nordisk/corporate-governance/remuneration.html.

Novo Nordisk has prepared a separate Remuneration Report that describes the remuneration awarded or due during 2019 to the members of the Board and the Executive Management of Novo Nordisk A/S as registered with the Danish Business Authority. This report also includes a description of key developments in remuneration in 2019, the actual remuneration of board members and executives, an overview of remuneration awarded during the previous five financial years, remuneration benchmarks and shareholdings by board members and executives. The Remuneration Report is available at: novonordisk.com/about-novo-nordisk/corporate-governance/remuneration.html.

Read more in the Remuneration report

Assurance

The company's financial reporting and the internal controls of financial reporting processes are audited by an independent audit firm elected at the Annual General Meeting. As part of Novo Nordisk's commitment to its social and environmental →

responsibility, the company voluntarily includes an assurance report for social and environmental reporting in the annual report. The assurance provider reviews whether the social and environmental performance information covers aspects that are deemed to be material and verifies the internal control processes for the information reported.

Novo Nordisk's internal audit function provides independent and objective assurance, primarily within internal control of financial processes, IT security and business ethics. To ensure that the internal financial audit function operates independently of Executive Management, its charter, audit plan and budget are approved by the Audit Committee. The Audit Committee must approve the appointment, remuneration and dismissal of the head of the internal audit function.

Other types of assurance activity – quality audits and values audits, known as facilitations – help to ensure that the company adheres to high quality standards and operates in accordance with the Novo Nordisk Way. Read more about the Novo Nordisk Way in 'Leading a sustainable business'.

Compliance with corporate governance codes

Novo Nordisk's B shares are listed on Nasdaq Copenhagen and on the New York Stock Exchange (NYSE) as American Depository Receipts (ADRs).

Today, Novo Nordisk adheres to all Danish Corporate Governance Recommendations designated by Nasdaq Copenhagen except the following five recommendations:

3.3.2 Disclosure of additional information about the Board members: information on matters such as numbers of shares owned and changes during the year is disclosed in the Remuneration Report for 2019 and not in the management commentary.

3.4.2 Independence of Board committees: the majority of the members of the Nomination Committee and the Remuneration Committee are not independent.

3.4.6 Tasks of the Nomination Committee: responsibility for succession management and recommending candidates for the Executive Management resides with the Chairmanship and not with the Nomination Committee.

3.4.7 Tasks of the Remuneration Committee: responsibility for the remuneration policy applicable to employees in general resides with Executive Management and not with the Remuneration Committee.

4.1.5 Termination payments: one executive employment contract entered into before 2008 allow for severance payments of more than 24 months' fixed base salary plus pension contribution, and thus the total value of the remuneration relating to the notice period and of the severance payment exceeds two years of remuneration.

Novo Nordisk complies with the corporate governance standards of NYSE applicable to foreign listed private issuers. A summary of the significant ways in which Novo Nordisk's corporate governance practices differ from the NYSE corporate governance listing standards can be found in the Statutory Corporate Governance Report.

The Statutory Corporate Governance Report, in accordance with section 107b of the Danish Financial Statements Act, the applicable corporate governance codes for each stock exchange and an overview of Novo Nordisk's compliance with and explanations for all applicable Nasdaq and NYSE Corporate Governance recommendations, are all available at novonordisk.com/about-novo-nordisk/corporate-governance/Recommendations-and-practices.html

Read more in the Corporate Governance report

Disclosure regarding change of control

The EU Takeover Bids Directive, as partially implemented by the Danish Financial Statements Act, requires listed companies to disclose information that may be of interest to the market and potential take-over bidders, in particular in relation to disclosure of change-of-control provisions.

Novo Nordisk discloses that the Group has one significant agreement with a US payer which takes effect, alters or terminates upon a change of control of the Group. If effected, a takeover could – at the discretion of the relevant counterparty – lead to the termination of such agreement. Given the ownership structure of Novo Nordisk, the risk is considered to be remote.

In relation to Executive Management, the current employment contracts allow severance payments of up to 36 months' fixed base salary plus pension contributions in the event of a merger, acquisition or takeover of Novo Nordisk.

For information about the ownership structure of Novo Nordisk, see 'Shares and capital structure'.

Board of Directors

Helge Lund — Chair
Chair of the Board of Novo Nordisk A/S since 2018 (member for one year in 2014-2015 and again in 2017) and chair of the Nomination Committee since 2018 (member since 2017).
Position and management duties: Operating advisor to Clayton Dubilier & Rice, US. Chair of the Board of BP p.l.c., UK. Member of the boards of P/F Tjaldur, Faroe Islands, Inkerman Holding AS, Norway, and Belron SA, Luxembourg. Member of the Board of Trustees of the International Crisis Group.
Special competences: Extensive executive and board experience in large multinational companies and significant financial knowledge.
Education: MBA from INSEAD, France (1991) and MA in Economics from the Norwegian School of Economics & Business Administration (NHH), Norway (1987).

Jeppe Christiansen — Vice chair
Vice chair and member of the Board of Novo Nordisk A/S since 2013. Chair of the Remuneration Committee since 2017 (member since 2015).
Positions and management duties: Chief executive officer of Maj Invest Holding A/S as well as board member and/or executive director in three wholly owned subsidiaries of this company, all in Denmark. Chair of Haldor Topsøe A/S and Emlika ApS and board member of a wholly owned subsidiary of this company and of the boards of Novo Holdings A/S and KIRKBI A/S, all in Denmark. Member of the Board of Governors of Det Kgl. Vajsenhus, Denmark. Adjunct Professor, Department of Finance, Copenhagen Business School, Denmark.
Special competences: Executive background and extensive experience within the financial sector, in particular in relation to financial and capital market issues as well as insight into the investor perspective.
Education: MSc in Economics from University of Copenhagen, Denmark (1985).

Brian Daniels
Member of the Board of Novo Nordisk A/S since 2016, member of the Remuneration Committee since 2018 and member of the Research & Development Committee since 2017.
Position and management duties: Partner with 5AM Venture Management, LLC, and member of the board at Caballeta Bio Inc., both in the US.
Special competences: Extensive experience in clinical development, medical affairs and corporate strategy across a broad range of therapeutics areas within the pharmaceutical industry, especially in the US.
Education: MD from Washington University, St. Louis, US (1987), and MA in Metabolism and Nutritional Biochemistry (1981) and BSc in Life Sciences (1981), both from Massachusetts Institute of Technology, Cambridge, US.

Laurence Debroux
Member of the Board of Novo Nordisk A/S and member of the Audit Committee since 2019.
Positions and management duties: Group chief financial officer, executive board member, of Heineken N.V., the Netherlands. Member of the board of Exor N.V., the Netherlands, and of HEC Paris Business School, France.
Special competences: Significant financial and accounting experience, extensive global experience within the pharmaceutical industry and experience from executive positions in major international companies.
Education: Master Degree from HEC Paris, Ecoles des Hautes Etudes Commerciales, France (1992).

Andreas Fibig
Member of the Board of Novo Nordisk A/S and member of the Audit Committee since 2018.
Position and management duties: Chair and chief executive officer of International Flavors & Fragrances Inc., US, Chair of the Board of the German American Chamber of Commerce, and Executive Committee member of the World Business Council for Sustainable Development (WBCSD).
Special competences: Extensive global experience within biopharmaceutical companies, in-depth knowledge of strategy, sales and marketing and knowledge about how large international companies operate.
Education: Degree in Marketing from Berlin School of Economics, Germany (1982).

Sylvie Grégoire
Member of the Board of Novo Nordisk A/S and of the Audit Committee since 2015, member of the Research & Development Committee since 2017, and member of the Nomination Committee since 2018.
Positions and management duties: Chair of the board of Corvidia Therapeutics Inc., executive chair of the board of EIP Pharma, Inc., and member of the board of Perkin Elmer Inc., all in the US.
Special competences: Deep knowledge of the regulatory environment in both the US and the EU, with experience of all phases of the product life cycle, including discovery, registration, pre-launch and managing the life cycle while on the market. She also has financial insight, including into P&L responsibility.
Education: Pharmacy Doctorate degree from the State University of NY at Buffalo, US (1986), BA in Pharmacy from Laval University, Canada (1984), and Science College degree from Séminaire de Sherbrooke, Canada (1980).

Competences and experience to be represented on the Board (shareholder-elected Board members only)

- Global business management, strategic operations and governance
- Healthcare industry and market access
- Research and development, technology and digitalisation
- M&A and external innovation sourcing
- People leadership and change management
- Finance and accounting

Read more on competences and experience to be represented on the Board under "Nomination" in the Corporate Governance article.

Liz Hewitt
Member of the Board of Novo Nordisk A/S since 2012, chair of the Audit Committee since 2015 (member since 2012) and member of the Remuneration Committee since 2018.
Position and management duties: Member of the board of Melrose Industries plc, UK, where she chairs the audit committee, and member of the board of National Grid plc, UK. External member of the House of Lords Commission, UK, where she chairs the audit committee.
Special competences: Extensive experience within the field of medical devices, significant financial knowledge, including mergers and acquisitions, and knowledge about how large international companies operate.
Education: FCA (UK Institute of Chartered Accountants) (1982), and BSc (Econ Hons) from the University College in London, UK (1977).

Mette Bøjer Jensen
Member of the Board of Novo Nordisk A/S (employee representative) and member of the Nomination Committee since 2018.
Position and management duties: Wash & Sterilisation Specialist in Product Supply, Novo Nordisk A/S.
Education: Graduate Programme (HD) in Business Administration (Strategic management and business development) from Copenhagen Business School, Denmark (2010), and MSc in Biotechnology, Aalborg University, Denmark (2001).

Kasim Kutay
Member of the Board of Novo Nordisk A/S and member of the Nomination Committee since 2017.
Positions and management duties: Chief executive officer of Novo Holdings A/S, Denmark. Member of the board of Novozymes A/S, Denmark, and of the Life Sciences Advisory Board of Gimv NV, Belgium.
Special competences: Extensive experience as financial advisor to the pharmaceutical, biotechnology and medical device industries. Mr Kutay has also advised healthcare companies on an international basis including companies based in Europe, the US, Japan and India.
Education: MSc in Economics (1987), and BSc in Economics (1986), both from the London School of Economics, UK.

Anne Marie Kverneland
Member of the Board of Novo Nordisk A/S since 2000 (employee representative) and member of the Remuneration Committee since 2017.
Positions and management duties: Laboratory technician and full-time union representative in Novo Nordisk A/S. Member of the Board of Directors of the Novo Nordisk Foundation since 2014.
Education: Degree in medical laboratory technology from the Copenhagen University Hospital, Denmark (1980).

Martin Mackay
Member of the Board of Novo Nordisk A/S and chair of the Research & Development Committee since 2018.
Positions and management duties: Co-founded Rallybio LLC, US, in January 2018 and serves as chair of the Board of the company and in an executive leadership role overseeing all research and non-research functions. Senior advisor to New Leaf Venture Partners, LLC, US. Member of the board and chairs the Science and Technology Committee of Charles River Laboratories International, Inc., US.
Special competences: R&D executive with extensive experience in building a pipeline, acquiring products and managing the portfolio of early-stage and late-stage projects in large international pharmaceutical companies.
Education: Doctorate/PhD from University of Edinburgh, UK (1984), and BSc (First Class Honours) in Microbiology from Heriot-Watt University, Edinburgh, UK (1979).

Thomas Rantzau
Member of the Board of Novo Nordisk A/S (employee representative) and member of the Research & Development Committee since 2018.
Positions and management duties: Area specialist in Product Supply, Novo Nordisk A/S.
Education: Degree in food engineering from DTU, Denmark (2003) and diploma as dairy technician (1992).

Stig Strøbæk
Member of the Board of Novo Nordisk A/S since 1998 (employee representative) and member of the Audit Committee since 2013.
Positions and management duties: Electrician and a full-time union representative in Novo Nordisk A/S.
Education: Diploma in further training for board members from the Danish Employees' Capital Pension Fund (LD) (2003), and diploma in electrical engineering (1984).

Meeting participation in 2019[1]

Name (male/female)	First elected	Term	Nationality	Born	Independence[2]	Board of Directors	Chairmanship	Audit Committee	Remuneration Committee	Nomination Committee	R&D Committee
Helge Lund (m)	2017[3]	2020	Norwegian	Oct. 1962	Independent	8/8	8/8			3/3	
Jeppe Christiansen (m)	2013	2020	Danish	Nov. 1959	Not independent [4]	8/8	6/8		5/5		
Laurence Debroux (f)	2019	2020	French	Jul. 1969	Independent	6/6		3/3			
Brian Daniels (m)	2016	2020	American	Feb. 1959	Independent	8/8			5/5		6/6
Andreas Fibig (m)	2018	2020	German	Feb. 1962	Independent [5, 6]	8/8		2/4			
Sylvie Grégoire (f)	2015	2020	Canadian/American	Nov. 1961	Independent [5, 6]	7/8		4/4		3/3	6/6
Liz Hewitt (f)	2012	2020	British	Nov. 1956	Independent [5, 6]	8/8		4/4	5/5		
Mette Bøjer Jensen (f)	2018	2022	Danish	Dec. 1975	Not independent [7]	8/8				3/3	
Kasim Kutay (m)	2017	2020	British	May 1965	Not independent [4]	8/8				3/3	
Anne Marie Kverneland (f)	2000	2022	Danish	Jul. 1956	Not independent [7]	8/8			5/5		
Martin Mackay (m)	2018	2020	American	Apr. 1956	Independent	8/8					6/6
Thomas Rantzau (m)	2018	2022	Danish	Mar. 1972	Not independent [7]	8/8					6/6
Stig Strøbæk (m)	1998	2022	Danish	Jan. 1964	Not independent [5, 7]	8/8		4/4			

1. Number of meetings attended by each board member out of the total number of meetings within the member's term. **2.** As designated by Nasdaq Copenhagen in accordance with section 3.2.1 of Recommendations on Corporate Governance. **3.** In addition, Helge Lund was a member of the Board for one year in 2014-2015 **4.** Member of the board or the management of Novo Holdings A/S. **5.** Pursuant to the US Securities Exchange Act, Ms Hewitt, Ms Grégoire and Mr Fibig qualify as independent Audit Committee members, while Mr Strøbæk relies on an exemption from the independence requirements. **6.** Ms Hewitt, Ms Grégoire and Mr Fibig qualify as independent Audit Committee members as defined under part 8 of the Danish Act on Approved Auditors and Audit Firms. **7.** Elected by employees of Novo Nordisk.

Executive Management

Lars Fruergaard Jørgensen — President and chief executive officer (CEO)
Born: November 1966.

Other positions and management duties:
Vice-chair of the supervisory board and member of the nomination committee of Carlsberg A/S, Denmark.

Monique Carter — Executive vice president, People & Organisation
Born: December 1973.

Other management positions:
No other management positions.

Maziar Mike Doustdar* — Executive vice president, International Operations
Born: August 1970.

Other positions and management duties:
No other management positions.

Ludovic Helfgott* — Executive vice president, Biopharm
Born: July 1974.

Other management positions:
No other management positions.

Karsten Munk Knudsen — Executive vice president, chief financial officer (CFO)
Born: December 1971.

Other positions and management duties:
Chair of the board of NNE A/S, Denmark.

Doug Langa* — Executive vice president, North America Operations
Born: October 1966.

Other positions and management duties:
No other management positions.

Camilla Sylvest — Executive vice president, Commercial Strategy & Corporate Affairs
Born: November 1972.

Other management duties:
Member of the board of Danish Crown A/S, Denmark and Vice Chair of the board of the World Diabetes Foundation, Denmark.

Mads Krogsgaard Thomsen — Executive vice president, chief science officer (CSO)
Born: December 1960.

Other management duties:
Member of the board of Symphogen A/S, Denmark. Member of the editorial boards of international, peer-reviewed journals. Adjunct professor at the Faculty of Health and Medical Sciences of the University of Copenhagen, Denmark.

Henrik Wulff — Executive vice president, Product Supply, Quality & IT
Born: November 1970.

Other management duties:
Chair of the board of Novo Nordisk Pharmatech A/S and member of the board of Ambu A/S, both in Denmark.

* Not registered as executive with the Danish Business Authority.

Consolidated financial, social and environmental statements 2019

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Income statement

and statement of comprehensive income for the year ended 31 December

DKK million	Note	2019	2018	2017
Income statement				
Net sales	2.1, 2.2	122,021	111,831	111,696
Cost of goods sold	2.2	20,088	17,617	17,632
Gross profit		101,933	94,214	94,064
Sales and distribution costs	2.2	31,823	29,397	28,340
Research and development costs	2.2, 2.3	14,220	14,805	14,014
Administrative costs	2.2	4,007	3,916	3,784
Other operating income, net	2.2, 2.5	600	1,152	1,041
Operating profit		52,483	47,248	48,967
Financial income	4.9	65	2,122	1,246
Financial expenses	4.9	3,995	1,755	1,533
Profit before income taxes		48,553	47,615	48,680
Income taxes	2.6	9,602	8,987	10,550
Net profit for the year		**38,951**	38,628	38,130
Earnings per share				
Basic earnings per share (DKK)	4.1	16.41	15.96	15.42
Diluted earnings per share (DKK)	4.1	16.38	15.93	15.39

DKK million	Note	2019	2018	2017
Statement of comprehensive income				
Net profit for the year		38,951	38,628	38,130
Other comprehensive income:				
Items that will not be reclassified subsequently to the income statement:				
Remeasurements of retirement benefit obligations	3.6	(187)	87	103
Items that will be reclassified subsequently to the income statement:				
Exchange rate adjustments of investments in subsidiaries		226	491	(632)
Cash flow hedges, realisation of previously deferred (gains)/losses	4.4	1,677	(2,027)	1,955
Cash flow hedges, deferred gains/(losses) incurred during the period	4.4	(329)	(1,677)	1,987
Other items		9	(27)	(577)
Tax on other comprehensive income, income/(expense)	2.6	(231)	755	(1,041)
Other comprehensive income for the year, net of tax		**1,165**	(2,398)	1,795
Total comprehensive income for the year		**40,116**	36,230	39,925

Cash flow statement

for the year ended 31 December

DKK million	Note	2019	2018	2017
Cash flow statement				
Net profit for the year		38,951	38,628	38,130
Adjustment of non-cash items:				
Income taxes in the income statement	2.6	9,602	8,987	10,550
Depreciation, amortisation and impairment losses	3.1, 3.2	5,661	3,925	3,182
Other non-cash items	4.7	7,032	6,098	2,027
Change in working capital	4.6	(3,388)	(3,370)	(3,634)
Interest received		64	51	101
Interest paid		(204)	(89)	(87)
Income taxes paid	2.6	(10,936)	(9,614)	(9,101)
Net cash generated from operating activities		**46,782**	44,616	41,168
Purchase of intangible assets	3.1	(2,299)	(2,774)	(1,022)
Proceeds from sale of property, plant and equipment		4	13	9
Purchase of property, plant and equipment	3.2	(8,932)	(9,636)	(7,626)
Proceeds from other financial assets		148	178	73
Purchase of other financial assets		(350)	(248)	(40)
Sale of marketable securities		—	—	2,009
Investment in associated companies	5.3	(97)	—	—
Proceeds from the divestment of Group and associated companies		(3)	368	—
Dividend received from associated companies	5.3	20	19	26
Net cash used in investing activities		**(11,509)**	(12,080)	(6,571)
Purchase of treasury shares	4.1	(15,334)	(15,567)	(16,845)
Dividends paid	4.1	(19,409)	(19,048)	(18,844)
Repayment of borrowings, net	4.2	(741)	94	—
Net cash used in financing activities		**(35,484)**	(34,521)	(35,689)
Net cash generated from activities		**(211)**	(1,985)	(1,092)
Cash and cash equivalents at the beginning of the year	4.5	15,629	17,158	18,461
Reclassification of bank overdraft to financing activities	4.5	—	412	—
Exchange gains/(losses) on cash and cash equivalents		(7)	44	(211)
Cash and cash equivalents at the end of the year	4.5	**15,411**	15,629	17,158

Balance sheet

at 31 December

DKK million	Note	2019	2018
Assets			
Intangible assets	3.1	5,835	5,145
Property, plant and equipment	3.2	50,551	41,891
Investments in associated companies		474	531
Deferred income tax assets	2.6	4,121	2,893
Other receivables and prepayments	4.8	841	—
Other financial assets	4.8	1,334	1,242
Total non-current assets		**63,156**	51,702
Inventories	3.4	17,641	16,336
Trade receivables	3.5, 4.8	24,912	22,786
Tax receivables		806	1,013
Other receivables and prepayments	4.8	3,434	3,090
Derivative financial instruments	4.3, 4.4, 4.8	188	204
Cash at bank	4.3, 4.5, 4.8	15,475	15,638
Total current assets		**62,456**	59,067
Total assets		**125,612**	110,769
Equity and liabilities			
Share capital	4.1	480	490
Treasury shares	4.1	(10)	(11)
Retained earnings		57,817	53,406
Other reserves		(694)	(2,046)
Total equity		**57,593**	51,839
Borrowings	4.2, 4.8	3,009	—
Deferred income tax liabilities	2.6	80	118
Retirement benefit obligations	3.6	1,334	1,256
Provisions	3.7	4,613	3,392
Total non-current liabilities		**9,036**	4,766
Borrowings	4.2, 4.8	1,474	515
Trade payables	4.8	6,358	6,756
Tax payables		4,212	4,610
Other liabilities	3.8, 4.8	15,085	14,098
Derivative financial instruments	4.4, 4.8	734	2,024
Provisions	3.7	31,120	26,161
Total current liabilities		**58,983**	54,164
Total liabilities		**68,019**	58,930
Total equity and liabilities		**125,612**	110,769

Equity statement

at 31 December

DKK million	Share capital	Treasury shares	Retained earnings	Other reserves: Exchange rate adjustments	Other reserves: Cash flow hedges	Other reserves: Tax and other items	Other reserves: Total other reserves	Total
2017								
Balance at the beginning of the year	510	(9)	46,111	(924)	(1,915)	1,496	(1,343)	45,269
Net profit for the year			38,130					38,130
Other comprehensive income for the year			103	(632)	3,942	(1,618)	1,692	1,795
Total comprehensive income for the year			38,233	(632)	3,942	(1,618)	1,692	39,925
Transactions with owners:								
Dividends (note 4.1)			(18,844)					(18,844)
Share-based payments (note 5.1)			292					292
Tax related to restricted stock units (note 2.6)			18					18
Purchase of treasury shares (note 4.1)		(12)	(16,833)					(16,845)
Reduction of the B share capital (note 4.1)	(10)	10						—
Balance at the end of the year	500	(11)	48,977	(1,556)	2,027	(122)	349	49,815
2018								
Change in accounting policy, IFRS 9 (net of tax)			(90)			90	90	—
Net profit for the year			38,628					38,628
Other comprehensive income for the year			87	491	(3,704)	728	(2,485)	(2,398)
Total comprehensive income for the year			38,625	491	(3,704)	818	(2,395)	36,230
Transactions with owners:								
Dividends (note 4.1)			(19,048)					(19,048)
Share-based payments (note 5.1)			414					414
Tax related to restricted stock units (note 2.6)			(5)					(5)
Purchase of treasury shares (note 4.1)		(10)	(15,557)					(15,567)
Reduction of the B share capital (note 4.1)	(10)	10						—
Balance at the end of the year	490	(11)	53,406	(1,065)	(1,677)	696	(2,046)	51,839
2019								
Net profit for the year			38,951					38,951
Other comprehensive income for the year			(187)	226	1,348	(222)	1,352	1,165
Total comprehensive income for the year			38,764	226	1,348	(222)	1,352	40,116
Transactions with owners:								
Dividends (note 4.1)			(19,409)					(19,409)
Share-based payments (note 5.1)			363					363
Tax related to restricted stock units (note 2.6)			18					18
Purchase of treasury shares (note 4.1)		(9)	(15,325)					(15,334)
Reduction of the B share capital (note 4.1)	(10)	10						—
Balance at the end of the year	480	(10)	57,817	(839)	(329)	474	(694)	**57,593**

Section 1
Basis of preparation

1.1 Principal accounting policies and key accounting estimates

The consolidated financial statements included in this Annual Report have been prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB) and in accordance with IFRS as endorsed by the EU and further requirements in the Danish Financial Statements Act. All entities in the Novo Nordisk Group follow the same Group accounting policies.

Measurement basis
The consolidated financial statements have been prepared on the historical cost basis except for derivative financial instruments, equity investments and trade receivables in a factoring portfolio, which are measured at fair value.

Except for the changes described in note 1.2, the principal accounting policies set out below have been applied consistently in the preparation of the consolidated financial statements for all the years presented.

Principal accounting policies
Novo Nordisk's accounting policies are described in each of the individual notes to the consolidated financial statements. Accounting policies listed in the table below are regarded as the principal accounting policies applied by the Management.

Key accounting estimates and judgements
The use of reasonable estimates and judgements is an essential part of the preparation of the consolidated financial statements. Given the uncertainties inherent in Novo Nordisk's business activities, Management must make certain estimates regarding valuation and judgements on the reported amounts of assets, liabilities, net sales, expenses and related disclosures.

The key accounting estimates identified are those that have a significant risk of resulting in a material adjustment to the measurement of assets and liabilities in the following reporting period. Management bases its estimates on historical experience and various other assumptions that are held to be reasonable under the circumstances. The estimates and underlying assumptions are reviewed on an ongoing basis. If necessary, changes are recognised in the period in which the estimate is revised. Management considers the key accounting estimates to be reasonable and appropriate based on currently available information. The actual amounts may differ from the amounts estimated as more detailed information becomes available.

In addition, Management makes judgements and estimates in the process of applying the entity's accounting policies, for example regarding recognition and measurement of deferred income tax assets or the classification of transactions.

Management regards those listed below as the key accounting estimates and judgements used in the preparation of the consolidated financial statements.

Please refer to the specific notes for further information on the key accounting estimates and judgements as well as assumptions applied.

Principal accounting policies	Key accounting estimates and judgements	Note	Estimation risk
US net sales and rebates	Estimate of US sales deductions and provisions for sales rebates	2.1	High
Income taxes and deferred income taxes	Judgement and estimate regarding deferred income tax assets and provision for uncertain tax positions	2.6	Medium
Intangible assets	Estimate regarding impairment of assets	3.1	Low
Inventories	Estimate of indirect production costs capitalised and inventory write-down	3.4	Low
Provisions and contingent liabilities	Estimate of ongoing legal disputes, litigation and investigations	3.7	High

Applying materiality
The consolidated financial statements are a result of processing large numbers of transactions and aggregating those transactions into classes according to their nature or function. The transactions are presented in classes of similar items in the consolidated financial statements. If a line item is not individually material, it is aggregated with other items of a similar nature in the consolidated financial statements or in the notes.

There are substantial disclosure requirements throughout IFRS. Management provides specific disclosures required by IFRS unless the information is not applicable or is considered immaterial to the economic decision-making of the users of these financial statements.

1.2 Changes in accounting policies and disclosures

Adoption of new or amended IFRSs
Management has assessed the impact of new or amended and revised accounting standards and interpretations (IFRSs) issued by the IASB and IFRSs endorsed by the European Union.

IFRS 16 'Leases'
As of 1 January 2019 Novo Nordisk applied IFRS 16 'Leases' for the first time.

The Group has implemented IFRS 16 'Leases' using the modified retrospective approach.

Under this method, the cumulative effect of initially applying the standard is recognised at 1 January 2019. Right-of-use assets and lease liabilities have been recognised for those leases previously classified as operating leases, except for short-term leases and leases of low value assets. The right-of-use assets have been recognised based on the amount equal to the lease liabilities, adjusted for any related prepaid and accrued lease payments previously recognised. Lease liabilities are recognised based on the present value of the remaining lease payments, discounted using the incremental borrowing rate as of 1 January 2019. The comparative information has not been restated.

Impact from IFRS 16 as of 1 January 2019:

DKK million	1 January 2019
Property, plant and equipment	3,778
Prepayments	(5)
Borrowings (non-current)	3,330
Borrowings (current)	658
Other liabilities	(215)
Net assets	—

On transition to IFRS 16, the Group recognised an additional DKK 3,778 million of right-of-use assets and DKK 3,988 million of lease liabilities.

The change in policy has had an insignificant impact on the income statement. In the cash flow statement the principal repayment of lease liabilities is presented in 'net cash used in financing activities', whereas the full lease payment under previous policies was presented in 'net cash generated from operating activities'. The change in policy has had no impact on free cash flow due to a change in definition, as described in non-IFRS financial measures. Refer to note 3.3 for the new accounting policies.

The following recognition exemptions and practical expedients were applied on transition:
- Applied a single discount rate to a portfolio of leases with similar characteristics
- Excluded initial direct costs from measuring the right-of-use asset at the date of initial application
- Used hindsight when determining the lease term if the contract contains option to extend or terminate
- Exempted short-term lease contracts with a remaining duration of 12 months or less as at 1 January 2019

Reconciliation of lease liabilities pursuant to IFRS 16 on transition:

DKK million	1 January 2019
Operating lease commitment as disclosed in the Group's 2018 consolidated financial statements	**4,896**
Short-term leases	(142)
Leases of low value assets	(43)
Service commitments excluded	(220)
Other	(31)
Lease liability on transition (undiscounted)	**4,460**
Discounted using the Group's incremental borrowing rate at 1 January 2019	2.95%
Lease liability recognised on transition	**3,988**

On transition to IFRS 16, Novo Nordisk recognised lease liabilities in relation to leases which had previously been classified as operating leases in accordance with IAS 17. The lease liabilities were measured at the present value of the future discounted lease payments using Novo Nordisk's incremental borrowing rate at 1 January 2019. The weighted average incremental borrowing rate applied on transition to IFRS 16 was 2.95%.

Other new interpretations effective 1 January 2019
It is assessed that application of other new interpretations effective on 1 January 2019 has not had a material impact on the Consolidated financial statements in 2019. Furthermore, Management does not anticipate any significant impact on future periods from the adoption of these new interpretations.

Adoption of new or amended IFRSs in prior periods
As of 1 January 2018 Novo Nordisk applied IFRS 9 'Financial Instruments' and IFRS 15 'Revenue from contracts with customers' for the first time. The impact of the implementation of IFRS 9 and IFRS 15 was immaterial in relation to recognition and measurement.

1.3 General accounting policies

Principles of consolidation
The consolidated financial statements incorporate the financial statements of the parent company Novo Nordisk A/S and entities controlled by Novo Nordisk A/S. Control exists when Novo Nordisk has effective power over the entity and has the right to variable returns from the entity.

Where necessary, adjustments are made to bring the financial statements of subsidiaries in line with the Novo Nordisk Group's accounting policies. All intra-Group transactions, balances, income and expenses are eliminated in full when consolidated.

The results of subsidiaries acquired or disposed of during the year are included in the Consolidated income statement from the effective date of acquisition and up to the effective date of disposal.

Translation of foreign currencies
Functional and presentation currency
Items included in the financial statements of Novo Nordisk's entities are measured using the currency of the primary economic environment in which the entity operates (functional currency). The consolidated financial statements are presented in Danish kroner (DKK), which is also the functional and presentation currency of the parent company.

Translation of transactions and balances
Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the transaction dates. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities are recognised in the income statement.

Foreign currency differences arising from the translation of effective qualifying cash flow hedges are recognised in other comprehensive income.

Translation of Group companies
Financial statements of foreign subsidiaries are translated into DKK at the exchange rates prevailing at the end of the reporting period for balance sheet items, and at average exchange rates for income statement items.

All effects of exchange rate adjustments are recognised in other comprehensive income, i.e.:

- The translation of foreign subsidiaries' net assets at the beginning of the year to the exchange rates at the end of the reporting period.
- The translation of foreign subsidiaries' statements of comprehensive income at average to year-end exchange rates.

Section 2
Results for the year

2.1 Net sales and rebates

Accounting policies
Revenue from sale of goods is recognised when Novo Nordisk has transferred control of products sold to the buyer and it is probable that Novo Nordisk will collect the consideration to which it is entitled for transferring the products. Control of the products is transferred at a point in time, typically on delivery.

The amount of sales to be recognised is based on the consideration Novo Nordisk expects to receive in exchange for its goods. When sales are recognised, Novo Nordisk also records estimates for a variety of sales deductions, including product returns as well as rebates and discounts to government agencies, wholesalers, health insurance companies, managed healthcare organisations and retail customers. Sales deductions are recognised as a reduction of gross sales to arrive at net sales, by assessing the expected value of the sales deductions (variable consideration). Where contracts contain customer acceptance criteria, Novo Nordisk recognises sales when the acceptance criteria are satisfied.

In some markets, Novo Nordisk sells products on a sale-or-return basis. Where there is historical experience or a reasonably accurate estimate of future returns, estimated product returns are recorded as a reduction in sales. Where shipments of new products are made on a sale-or-return basis, without sufficient historical experience for estimating sales returns, revenue is recorded based on estimated demand and acceptance rates for well-established products with similar market characteristics. If similar market characteristics do not exist, revenue is recorded when there is evidence of consumption or when the right of return has expired.

Key accounting estimates of sales deductions and provisions for sales rebates
Sales deductions are estimated and provided for at the time the related sales are recorded. These estimates of unsettled rebate, discount and product return obligations require use of significant judgement, as not all conditions are known at the time of sale, for example total sales volume to a given customer.

The estimates are based on analyses of existing contractual obligations and historical experience. Provisions are calculated on the basis of a percentage of sales for each product as defined by the contracts with the various customer groups. Provisions for sales rebates are adjusted to actual amounts as rebates, discounts and returns are processed.

Novo Nordisk considers the provisions established for sales rebates to be reasonable and appropriate based on currently available information. However, the actual amount of rebates and discounts may differ from the amounts estimated by Management as more detailed information becomes available.

Gross-to-net sales reconciliation

DKK million	2019	2018	2017
Gross sales	270,431	230,701	216,174
US Managed Care and Medicare	(84,202)	(65,207)	(53,077)
US wholesaler charge-backs	(33,772)	(29,469)	(28,324)
US Medicaid rebates	(14,365)	(11,950)	(12,491)
Other US discounts and sales returns	(8,280)	(6,606)	(5,771)
Non-US rebates, discounts and sales returns	(7,791)	(5,638)	(4,815)
Total gross-to-net sales adjustments	(148,410)	(118,870)	(104,478)
Net sales	**122,021**	111,831	111,696

Sales discounts and sales rebates are predominantly issued in the US. As such, rebates amount to 71% of gross sales in the US (68% in 2018 and 64% in 2017). Novo Nordisk sales are impacted by exchange rate changes. For developments in key currencies refer to note 4.3.

Pricing mechanisms in the US market
In the US, sales rebates are paid in connection with public healthcare insurance programmes, namely Medicare and Medicaid, as well as rebates to pharmacy benefit managers (PBMs) and managed healthcare plans. Key customers in the US include private payers, PBMs and government payers. PBMs and managed healthcare plans play a role in negotiating price concessions with drug manufacturers for both the commercial and government channels, and determine which drugs are covered on their formularies (or 'preferred drug lists').

US Managed Care and Medicare
For Managed Care and Medicare, rebates are offered to a number of PBMs and managed healthcare plans. These rebate programmes allow the customer to receive a rebate after attaining certain performance parameters relating to formulary status or pre-established market shares thresholds. Rebates are estimated according to the specific terms in each agreement, historical experience, anticipated channel mix, growth rates and market share information. Novo Nordisk adjusts the provision periodically to reflect actual sales performance. Managed Care and Medicare rebates are generally settled around 100 days from the transaction date.

US wholesaler charge-backs
Wholesaler charge-backs relate to contractual arrangements between Novo Nordisk and indirect customers in the US whereby products are sold at contract prices lower than the list price originally charged to wholesalers. A wholesaler charge-back represents the difference between the invoice price to the wholesaler and the indirect customer's contract price. Accruals are calculated for estimated charge-backs using a combination of factors such as historical experience, current wholesaler inventory levels, contract terms and the value of claims received but not yet processed. Wholesaler charge-backs are generally settled within 30 days of the liability being incurred.

US Medicaid rebates
Medicaid is a government insurance programme. Medicaid rebates have been estimated using a combination of historical experience, product and population growth, price increases, and the impact of contracting strategies. The calculation also involves interpretation of relevant regulations that are subject to changes in interpretative guidance from government authorities. Novo Nordisk adjusts the provision periodically to reflect actual sales performance. Medicaid rebates are generally settled around 150 days from the transaction date.

Other US discounts and sales returns
Other discounts are provided to wholesalers, hospitals, pharmacies, etc. They are usually linked to sales volume or provided as cash discounts. Accruals are calculated based on historical data and recorded as a reduction in gross sales at the time the related sales are recorded. Sales returns are related to damaged or expired products.

Arrangements with certain healthcare providers may require Novo Nordisk to make refunds to the healthcare providers if anticipated treatment outcomes do not meet predefined targets.

Provisions for sales rebates

DKK million	2019	2018	2017
At the beginning of the year	25,760	20,374	20,063
Additional provisions, including increases to existing provisions	102,782	82,631	63,880
Amount paid during the year	(98,655)	(78,647)	(61,059)
Adjustments, including unused amounts reversed during the year	381	386	(117)
Effect of exchange rate adjustment	610	1,016	(2,393)
At the end of the year	**30,878**	25,760	20,374

Unsettled rebates are recognised as Provisions when the timing or amount is uncertain (note 3.7). Where absolute amounts are known, the rebates are recognised as other liabilities. Wholesaler charge-backs are netted against trade receivable balances. Provisions for sales rebates thus includes US Managed Care, Medicare, Medicaid and other minor US rebate types, as well as rebates in a number of European countries and Canada.

2.2 Segment information

Accounting policies
Operating segments are reported in a manner consistent with the internal reporting provided to Executive Management and the Board of Directors. We consider Executive Management to be the operating decision-making body, as all significant decisions regarding business development and direction are taken in this forum.

Business segments
Novo Nordisk operates in two business segments based on therapies: Diabetes and Obesity care and Biopharm, representing the entirety of the Group's operations.

The segments include research, development, manufacturing and marketing of products within the following areas:
- Diabetes and Obesity care: insulin, GLP-1 and related delivery systems, oral anti-diabetic products (OAD), obesity and other serious chronic diseases.
- Biopharm: haemophilia, growth disorders and hormone replacement therapy.

Segment performance is evaluated on the basis of operating profit consistent with the Consolidated financial statements. Financial income and expenses and income taxes are managed at Group level and are not allocated to business segments.

There are no sales or other transactions between the business segments. Costs have been split between business segments according to a specific allocation. In addition, a small number of corporate overhead costs are allocated systematically between the segments. Other operating income has been allocated to the two segments based on the same principle. Segment assets comprise the assets that are applied directly to the activities of the segment, including intangible assets, property, plant and equipment, inventories, trade receivables and other receivables and prepayments.

Business segments

DKK million	**2019**	2018	2017	**2019**	2018	2017	**2019**	2018	2017
Segment sales	Diabetes and Obesity care			Biopharm			**Total**		
Long-acting insulin	20,776	20,844	22,174						
- of which Tresiba®	9,259	8,035	7,327						
- of which Xultophy®	2,210	1,614	729						
- of which Levemir®	9,307	11,195	14,118						
Premix insulin	10,578	10,194	10,749						
- of which Ryzodeg®	993	714	492						
- of which NovoMix®/NovoLog Mix®	9,585	9,480	10,257						
Fast-acting insulin	19,303	19,353	20,124						
- of which Fiasp®	1,243	590	99						
- of which NovoRapid®/NovoLog®	18,060	18,763	20,025						
Human insulin	9,036	9,265	9,793						
Total insulin	59,693	59,656	62,840						
Victoza®	21,934	24,333	23,173						
Ozempic®	11,237	1,796	—						
Rybelsus®	50	—	—						
Total GLP-1	33,221	26,129	23,173						
Other Diabetes care	4,247	4,250	4,302						
Total Diabetes care	97,161	90,035	90,315						
Obesity care (Saxenda®)	5,679	3,869	2,562						
Diabetes and Obesity care total sales	**102,840**	93,904	92,877						
Haemophilia				10,281	9,576	10,469			
- of which NovoSeven®				8,119	7,881	9,206			
- of which NovoEight®				1,525	1,354	1,103			
Growth disorders (Norditropin®)				7,275	6,834	6,655			
Other Biopharm				1,625	1,517	1,695			
Biopharm total sales				**19,181**	17,927	18,819			
Segment key figures									
Total net sales	102,840	93,904	92,877	19,181	17,927	18,819	122,021	111,831	111,696
Cost of goods sold	16,309	14,716	15,014	3,779	2,901	2,618	20,088	17,617	17,632
Sales and distribution costs	28,729	26,396	25,475	3,094	3,001	2,865	31,823	29,397	28,340
Research and development costs	12,128	12,222	11,358	2,092	2,583	2,656	14,220	14,805	14,014
Administrative costs	3,346	3,266	3,143	661	650	641	4,007	3,916	3,784
Other operating income, net	309	538	466	291	614	575	600	1,152	1,041
Operating profit	**42,637**	37,842	38,353	**9,846**	9,406	10,614	**52,483**	47,248	48,967
Operating margin	41.5%	40.3%	41.3%	51.3%	52.5%	56.4%	43.0%	42.2%	43.8%
Depreciation, amortisation and impairment losses expensed	3,916	3,210	2,536	1,745	715	646	5,661	3,925	3,182
Additions to Intangible assets and Property, plant and equipment	9,644	9,219	7,565	1,518	3,107	2,226	11,162	12,326	9,791
Assets allocated to business segments	86,700	71,706	61,542	16,514	17,542	14,994	103,214	89,248	76,536
Non-allocated assets[1]							22,398	21,521	25,819
Total assets							**125,612**	110,769	102,355

1. The part of total assets that remains unallocated to either of the two business segments includes investments in associated companies, deferred income tax assets, other financial assets, tax receivables, derivative financial instruments and cash at bank.

2.2 Segment information (continued)

Geographical areas
Novo Nordisk operates in two main commercial units:

- International Operations
  - Region Europe: the EU, EFTA, Albania, Bosnia-Herzegovina, Macedonia, Serbia, Montenegro and Kosovo
  - Region AAMEO: countries in Africa, Asia, Middle East & Oceania
  - Region China: Mainland China, Taiwan and Hong Kong
  - Region Japan & Korea: Japan and South Korea
  - Region Latin America: countries in South America, Central America and Mexico
- North America Operations (the US and Canada)

Sales are attributed to geographical regions according to the location of the customer. Allocation of property, plant and equipment, trade receivables, allowance for trade receivables and total assets is based on the location of the assets.

The country of domicile is Denmark, which is part of Region Europe. Denmark is immaterial to Novo Nordisk's activities in terms of geographical size and the operational business segments. 99.7% of total sales are realised outside Denmark. Of total property, plant and equipment, DKK 25,175 million is located in Denmark, where the Group's main production, filling, packaging, moulding and assembly facilities are located.

Net sales disclosures
Sales to external customers attributed to the US are collectively the most material to the Group. The US and Mainland China are the only territories where sales contribute 10% or more of total net sales.

In 2019, Novo Nordisk had three major wholesalers distributing products, representing 19%, 14% and 12% respectively of total net sales (20%, 13% and 13% in 2018 and 21%, 13% and 12% in 2017). Sales to these three wholesalers are within both Diabetes and Obesity care and Biopharm.

Net sales to be recognised from fulfilling existing customer contracts containing fixed or minimum sales volumes, with an original term greater than 12 months, is expected to be DKK 544 million within 12 months (2018: DKK 767 million) and DKK 32 million thereafter (2018: DKK 742 million).

Net sales will be impacted by exchange rate fluctuations. Novo Nordisk has an accounting policy to recognise the income statement impact of foreign currency hedging within financial items. Please refer to notes 4.3, 4.4 and 4.9 for more details on hedging.

Geographical areas

	2019	2018	2017	**2019**	2018	2017	**2019**	2018	2017	**2019**	2018	2017
				International Operations								
DKK million	Total International Operations			Region Europe			Region AAMEO			Region China		
Sales by business segment:												
Long-acting insulin	9,035	7,942	7,416	4,720	4,282	3,895	1,526	1,281	1,229	1,059	814	694
- of which Tresiba®	3,477	2,764	2,345	1,685	1,246	966	406	337	261	87	16	2
- of which Xultophy®	1,493	1,085	567	1,266	1,007	560	146	58	7	—	—	—
- of which Levemir®	4,065	4,093	4,504	1,769	2,029	2,369	974	886	961	972	798	692
Premix insulin	9,707	8,862	8,959	1,595	1,701	1,878	2,961	2,606	2,686	4,306	3,783	3,555
- of which Ryzodeg®	993	714	492	68	56	26	429	275	183	4	—	—
- of which NovoMix®/NovoLog Mix®	8,714	8,148	8,467	1,527	1,645	1,852	2,532	2,331	2,503	4,302	3,783	3,555
Fast-acting insulin	10,304	9,332	9,156	4,732	4,558	4,366	2,622	2,194	2,261	1,753	1,450	1,253
- of which Fiasp®	617	357	91	585	357	91	27	—	—	—	—	—
- of which NovoRapid®/NovoLog®	9,687	8,975	9,065	4,147	4,201	4,275	2,595	2,194	2,261	1,753	1,450	1,253
Human insulin	7,361	7,348	7,856	1,380	1,580	1,770	2,230	2,065	1,922	2,847	2,821	3,096
Total insulin	36,407	33,484	33,387	12,427	12,121	11,909	9,339	8,146	8,098	9,965	8,868	8,598
Victoza®	7,249	6,240	5,708	3,967	3,720	3,451	1,005	841	858	898	521	309
Ozempic®	1,143	39	—	965	39	—	4	—	—	—	—	—
Rybelsus®	—	—	—	—	—	—	—	—	—	—	—	—
Total GLP-1	8,392	6,279	5,708	4,932	3,759	3,451	1,009	841	858	898	521	309
Other Diabetes care	3,389	3,360	3,359	562	579	605	691	675	754	1,647	1,672	1,566
Total Diabetes care	48,188	43,123	42,454	17,921	16,459	15,965	11,039	9,662	9,710	12,510	11,061	10,473
Obesity care (Saxenda®)	2,083	1,211	569	334	207	102	802	418	190	9	1	—
Diabetes and Obesity care total	50,271	44,334	43,023	18,255	16,666	16,067	11,841	10,080	9,900	12,519	11,062	10,473
Haemophilia	5,946	5,572	5,446	2,762	2,781	2,828	1,305	1,177	1,163	284	199	216
- of which NovoSeven®	4,502	4,424	4,597	1,767	1,944	2,245	1,130	1,049	1,097	269	194	215
- of which NovoEight®	1,143	1,046	788	790	776	551	146	109	52	15	5	1
Growth disorders	4,225	4,000	4,105	1,466	1,511	1,572	691	680	676	36	20	15
Other Biopharm	1,122	1,017	1,113	779	721	722	252	216	279	5	4	5
Biopharm total	11,293	10,589	10,664	5,007	5,013	5,122	2,248	2,073	2,118	325	223	236
Total sales by business and geographical segment	**61,564**	54,923	53,687	**23,262**	21,679	21,189	**14,089**	12,153	12,018	**12,844**	11,285	10,709
Total sales growth as reported	**12.1%**	2.3%	2.2%	**7.3%**	2.3%	2.5%	**15.9%**	1.1%	3.8%	**13.8%**	5.4%	2.4%
Property, plant and equipment	30,972	28,851	27,929	26,730	25,500	24,665	1,003	723	566	2,101	1,812	1,884
Trade receivables, net	10,508	9,884	9,423	3,611	3,388	3,273	3,595	3,237	3,468	1,760	1,841	1,541
Allowance for doubtful trade receivables	*(1,471)*	*(1,358)*	*(1,262)*	*(196)*	*(241)*	*(223)*	*(967)*	*(866)*	*(823)*	—	—	—
Total assets	85,541	80,420	81,743	67,007	64,327	65,600	6,729	5,635	5,876	6,820	6,003	5,927

Geographical areas (continued)

DKK million	2019	2018	2017	2019	2018	2017	2019	2018	2017	2019	2018	2017
	International Operations (continued)						North America Operations					
	Region Japan & Korea			Region Latin America			Total			Of which the US		
Sales by business segment:												
Long-acting insulin	930	857	872	800	708	726	11,741	12,902	14,758	11,271	12,600	14,466
- of which Tresiba®	821	751	739	478	414	377	5,782	5,271	4,982	5,500	5,192	4,970
- of which Xultophy®	11	—	—	70	20	—	717	529	162	708	528	162
- of which Levemir®	98	106	133	252	274	349	5,242	7,102	9,614	5,063	6,880	9,334
Premix insulin	722	650	697	123	122	143	871	1,332	1,790	839	1,294	1,743
- of which Ryzodeg®	457	351	253	35	32	30	—	—	—	—	—	—
- of which NovoMix®/NovoLog Mix®	265	299	444	88	90	113	871	1,332	1,790	839	1,294	1,743
Fast-acting insulin	790	779	941	407	351	335	8,999	10,021	10,968	8,592	9,634	10,574
- of which Fiasp®	5	—	—	—	—	—	626	233	8	597	211	—
- of which NovoRapid®/NovoLog®	785	779	941	407	351	335	8,373	9,788	10,960	7,995	9,423	10,574
Human insulin	170	187	232	734	695	836	1,675	1,917	1,937	1,552	1,778	1,766
Total insulin	2,612	2,473	2,742	2,064	1,876	2,040	23,286	26,172	29,453	22,254	25,306	28,549
Victoza®	748	614	590	631	544	500	14,685	18,093	17,465	14,217	17,561	16,929
Ozempic®	—	—	—	174	—	—	10,094	1,757	—	9,599	1,634	—
Rybelsus®	—	—	—	—	—	—	50	—	—	50	—	—
Total GLP-1	748	614	590	805	544	500	24,829	19,850	17,465	23,866	19,195	16,929
Other Diabetes care	421	368	376	68	66	58	858	890	943	705	733	782
Total Diabetes care	3,781	3,455	3,708	2,937	2,486	2,598	48,973	46,912	47,861	46,825	45,234	46,260
Obesity care (Saxenda®)	282	175	—	656	410	277	3,596	2,658	1,993	3,348	2,446	1,828
Diabetes and Obesity care total	4,063	3,630	3,708	3,593	2,896	2,875	52,569	49,570	49,854	50,173	47,680	48,088
Haemophilia	560	557	681	1,035	858	558	4,335	4,004	5,023	4,031	3,723	4,852
- of which NovoSeven®	377	400	497	959	837	543	3,617	3,457	4,609	3,454	3,278	4,451
- of which NovoEight®	116	135	169	76	21	15	382	308	315	358	291	315
Growth disorders	1,746	1,538	1,579	286	251	263	3,050	2,834	2,550	3,035	2,823	2,543
Other Biopharm	84	72	104	2	4	3	503	500	582	247	262	348
Biopharm total	2,390	2,167	2,364	1,323	1,113	824	7,888	7,338	8,155	7,313	6,808	7,743
Total sales by business and geographical segment	**6,453**	5,797	6,072	**4,916**	4,009	3,699	**60,457**	56,908	58,009	**57,486**	54,488	55,831
Total sales growth as reported	**11.3%**	(4.5%)	(2.5%)	**22.6%**	8.4%	3.0%	**6.2%**	(1.9%)	(2.1%)	**5.5%**	(2.4%)	(2.4%)
Property, plant and equipment	436	201	146	702	615	668	19,579	13,040	7,318	19,531	13,023	7,298
Trade receivables, net	495	504	279	1,047	914	862	14,404	12,902	10,742	13,999	12,643	10,517
Allowance for doubtful trade receivables	*(7)*	*(5)*	*(5)*	*(301)*	*(246)*	*(211)*	*(13)*	*(12)*	*(32)*	*(13)*	*(12)*	*(32)*
Total assets	1,543	1,503	1,304	3,442	2,952	3,036	40,071	30,349	20,612	39,460	29,732	20,180

2.3 Research and development costs

Accounting policies
Novo Nordisk's research and development is mainly focused on:

- Insulins, GLP-1s and other therapeutic new antidiabetic drugs for diabetes treatment.
- GLP-1s, combinations and new modes of action for Obesity care.
- Blood-clotting factors and new modes of action for haemophilia treatment.
- Human growth hormone for treatment of growth disorders.
- New modes of action including GLP-1 and stem cells for treatment of NASH, cardiovascular disease, chronic kidney disease and Parkinson's disease, among others.

The research activities mainly utilise biotechnological methods based on advanced protein chemistry and protein engineering. These methods have played a key role in the development of the production technology used to manufacture insulin, GLP-1, recombinant blood-clotting factors and human growth hormone.

Novo Nordisk expenses all research costs. In line with industry practice, internal and subcontracted development costs are also expensed as they are incurred, due to significant regulatory uncertainties and other uncertainties inherent in the development of new products. This means that they do not qualify for capitalisation as intangible assets until marketing approval by a regulatory authority is obtained or considered highly probable. Costs for post-approval activities that are required by authorities as a condition for obtaining regulatory approval are recognised as research and development costs.

Research and development activities are carried out by Novo Nordisk's research and development centres, mainly in Denmark, the US, the UK and China. Research and development trials are carried out all over the world. Novo Nordisk also enters into partnerships and licence agreements.

Research and development costs primarily comprise employee costs, and internal and external costs related to execution of studies, including manufacturing costs and facility costs of the research centres. The costs also comprise amortisation, depreciation and impairment losses related to software and property, plant and equipment used in the research and development activities. Impairment losses recognised on intangible assets not yet available for use related to research and development projects are presented in research and development costs.

2.3 Research and development costs (continued)

Certain research and development activities are recognised outside research and development costs:

- Royalty expenses paid to partners after regulatory approval are expensed as cost of goods sold.
- Royalty income received from partners is recognised as part of other operating income, net.
- Contractual research and development obligations to be paid in the future are disclosed separately as commitments in note 5.2.

Research and development costs by business segment (note 2.2)

DKK million	2019	2018	2017
Diabetes and Obesity care	12,128	12,222	11,358
Biopharm	2,092	2,583	2,656
Total	14,220	14,805	14,014

Research and development costs

DKK million	2019	2018	2017
Employee costs (note 2.4)	5,968	6,288	5,848
Amortisation and impairment losses, intangible assets (note 3.1)	522	769	211
Depreciation and impairment losses, property, plant and equipment (note 3.2)	783	468	525
Other research and development costs	6,947	7,280	7,430
Total research and development costs	14,220	14,805	14,014
As percentage of net sales	11.7%	13.2%	12.5%

2.4 Employee costs

Accounting policies
Wages, salaries, social security contributions, annual leave and sick leave, bonuses and non-monetary benefits are recognised in the year in which the associated services are rendered by employees of Novo Nordisk. Where Novo Nordisk provides long-term employee benefits, the costs are accrued to match the rendering of the services by the employees concerned.

Employee costs

DKK million	2019	2018	2017
Wages and salaries	25,335	25,259	23,869
Share-based payment costs (note 5.1)	363	414	292
Pensions – defined contribution plans	1,910	1,791	1,800
Pensions – defined benefit plans (note 3.6)	151	73	165
Other social security contributions	1,963	1,901	1,910
Other employee costs	2,203	2,087	2,102
Total employee costs for the year	31,925	31,525	30,138
Employee costs capitalised as intangible assets and property, plant and equipment	(1,314)	(1,500)	(1,435)
Change in employee costs capitalised as inventories	(139)	(105)	(91)
Total employee costs in the income statement	30,472	29,920	28,612
Included in the income statement:			
Cost of goods sold	8,134	8,164	7,854
Sales and distribution costs	13,463	12,214	11,994
Research and development costs	5,968	6,288	5,848
Administrative costs	2,679	2,755	2,505
Other operating income, net	228	499	411
Total employee costs in the income statement	30,472	29,920	28,612

Average number of full-time employees	42,218	42,881	41,665
Year-end number of full-time employees	42,703	42,672	42,076
Employees (total)	43,258	43,202	42,682

Remuneration to Executive Management and Board of Directors

DKK million	2019	2018	2017
Salary and short-term incentive	120	102	74
Pension	26	22	18
Benefits	14	4	6
Long-term incentive[3]	40	22	7
Severance payments	—	28	—
Executive Management in total[1,2]	200	178	105
Fee to Board of Directors[2]	19	17	16
Total	219	195	121

1. Jesper Brandgaard retired from Novo Nordisk in April 2019. Until April 2020 Jesper Brandgaard will continue to provide certain services for Novo Nordisk. Remuneration of Jesper Brandgaard from January to April 2019 is included in the above table. A severance payment of DKK 27.7 million is included in the 2018 amounts.
2. Total remuneration for registered members of Executive Management amounts to DKK 135 million (DKK 142 million in 2018 and DKK 74 million in 2017). All members of the Board of Directors are registered.
3. Please refer to note 5.1 for further information.

2.5 Other operating income, net

Accounting policies
Other operating income, net, comprises licence income and income of a secondary nature in relation to the main activities of Novo Nordisk. Licence income from royalties on future net sales is recognised as the underlying customers' sale occurs and from sales milestones once the contingent sale milestone is achieved in accordance with the terms of the relevant agreement. Income from the transfer of the right to use intellectual property may contain development or regulatory milestones (variable consideration) on which the income is recognised when the significant uncertainties in achieving the milestones are resolved, due to the significant uncertainties inherent in the development of pharmaceutical products.

Operating profit from the wholly owned subsidiary NNE A/S, not related to Novo Nordisk's main activities, is recognised as other operating income. Other operating income also includes income from sale of intellectual property rights.

2.6 Income taxes and deferred income taxes

Income taxes

Accounting policies
The tax expense for the period comprises current and deferred tax as well as interest on tax cases ongoing or settled during the year. It also includes adjustments to previous years and changes in provisions for uncertain tax positions. Tax is recognised in the income statement except to the extent that it relates to items recognised in equity or other comprehensive income.

Provisions for ongoing tax disputes are included as part of deferred tax assets, tax receivables and tax payables.

Management judgement regarding recognition of deferred income tax assets and provisions for uncertain tax positions
Novo Nordisk is subject to income taxes around the world. Significant judgement and estimates are required in determining the worldwide accrual for income taxes, deferred income tax assets and liabilities and provisions for uncertain tax positions.

Novo Nordisk recognises deferred income tax assets if it is probable that sufficient taxable income will be available in the future, against which the temporary differences and unused tax losses can be utilised.

Management has considered future taxable income and applied its judgement in assessing whether deferred income tax assets should be recognised.

In the course of conducting business globally, tax and transfer pricing disputes with tax authorities may occur. Management judgement is applied to assess the possible outcome of such disputes. The 'most probable outcome' method is applied when making provisions for uncertain tax positions, and Novo Nordisk considers the provisions made to be adequate. However, the actual obligation may deviate and depends on the result of litigation and settlements with the relevant tax authorities.

Swiss tax reform
In 2019, a tax reform was passed in Switzerland. The tax reform has a minor positive impact on the effective tax rate in 2019, driven by a non-recurring increase to deferred tax assets.

Income taxes expensed

DKK million	2019	2018	2017
Current tax on profit for the year	11,275	10,469	10,562
Deferred tax on profit for the year	(1,559)	(1,007)	182
Tax on profit for the year	9,716	9,462	10,744
Current tax adjustments recognised for prior years	(191)	(522)	(425)
Deferred tax adjustments recognised for prior years	77	47	231
Income taxes in the income statement	**9,602**	8,987	10,550
Tax on other comprehensive income for the year, (income)/ expense	**231**	(755)	1,041

DKK million	2019	2018	2017
Computation of effective tax rate:			
Statutory corporate income tax rate in Denmark	22.0%	22.0%	22.0%
Deviation in foreign subsidiaries' tax rates compared to the Danish tax rate (net)	(2.1%)	(1.9%)	0.0%
Non-taxable income less non-tax-deductible expenses (net)	0.1%	(0.2%)	0.1%
Others, including adjustment of prior years	(0.2%)	(1.0%)	(0.4%)
Effective tax rate	**19.8%**	18.9%	21.7%

The impact of the deviation in foreign subsidiaries' tax rates compared to the Danish tax rate is mainly driven by Swiss business activities.

Income taxes paid

DKK million	2019	2018	2017
Income taxes paid in Denmark for current year	7,774	6,640	6,798
Income taxes paid outside Denmark for current year	2,258	2,376	2,639
Income taxes paid/repayments relating to prior years	904	598	(336)
Total income taxes paid	**10,936**	9,614	9,101

2.6 Income taxes and deferred income taxes (continued)

Deferred income taxes

Accounting policies

Deferred income taxes arise from temporary differences between the accounting and tax values of the individual consolidated companies and from realisable tax loss carry-forwards. The tax value of tax loss carry-forwards is included in deferred tax assets to the extent that these are expected to be utilised in future taxable income. The deferred income taxes are measured according to current tax rules and at the tax rates assumed in the year in which the assets are expected to be utilised.

In general, the Danish tax rules related to dividends from group companies provide exemption from tax for most repatriated profits. A provision for withholding tax is only recognised if a concrete distribution of dividends is planned. The unrecognised potential withholding tax amounts to DKK 315 million for 2019 (DKK 367 million in 2018).

The value of future tax deductions in relation to share programmes is recognised as deferred tax, until the shares are paid out to the employees. Any estimated excess tax deduction compared to the costs realised in the income statement is charged to equity.

Development in deferred income tax assets and liabilities

DKK million	Property, plant and equipment	Intangible assets	Inventories	Liabilities	Other	Offset within countries	Total
2019							
Net deferred tax asset/(liability) at 1 January	(703)	(564)	973	2,402	667	—	2,775
Change in accounting policy, leases	(865)	—	—	865	—		—
Income/(charge) to the income statement	(5)	(155)	820	133	689		1,482
Income/(charge) to other comprehensive income	—	—	18	47	(296)		(231)
Income/(charge) to equity	—	—	—	—	18		18
Disposal of subsidiaries	—	—	—	(18)	—		(18)
Effect of exchange rate adjustment	(18)	1	—	23	9		15
Net deferred tax asset/(liability) at 31 December	(1,591)	(718)	1,811	3,452	1,087	—	**4,041**
Classified as follows:							
Deferred tax asset at 31 December	769	58	3,428	3,580	1,843	(5,557)	4,121
Deferred tax liability at 31 December	(2,360)	(776)	(1,617)	(128)	(756)	5,557	(80)
2018							
Net deferred tax asset/(liability) at 1 January	(868)	(500)	833	1,658	(28)	—	1,095
Income/(charge) to the income statement	199	(67)	177	763	(112)		960
Income/(charge) to other comprehensive income	—	—	(37)	(22)	814		755
Income/(charge) to equity	—	—	—	—	(15)		(15)
Effect of exchange rate adjustment	(34)	3	—	3	8		(20)
Net deferred tax asset/(liability) at 31 December	(703)	(564)	973	2,402	667	—	2,775
Classified as follows:							
Deferred tax asset at 31 December	694	52	2,490	2,403	833	(3,579)	2,893
Deferred tax liability at 31 December	(1,397)	(616)	(1,517)	(1)	(166)	3,579	(118)

The total tax value of unrecognised tax loss carry-forwards amounts to DKK 144 million in 2019 (DKK 90 million in 2018).

Section 3
Operating assets and liabilities

3.1 Intangible assets

Accounting policies
Patents and licences, including patents and licences acquired for research and development projects, are carried at historical cost less accumulated amortisation and any impairment loss. Amortisation is based on the straight-line method over the estimated useful life. This means the legal duration or the economic useful life depending on which is shorter, and not exceeding 15 years. The amortisation of patents and licences begins after regulatory approval has been obtained.

Internal development of software for internal use is recognised as intangible assets if the recognition criteria are met, for example a significant business system where the expenditure leads to the creation of a durable asset. Amortisation is based on the straight-line method over the estimated useful life of 3-15 years. The amortisation begins when the asset is in the location and condition necessary for it to be capable of operating in the manner intended by Management.

Research and development projects
Internal and subcontracted research costs are charged in full to the consolidated income statement in the period in which they are incurred. Consistent with industry practice, internal development costs are also expensed until regulatory approval is obtained or is probable; please refer to note 2.3.

Payments to third parties under collaboration and license agreements are assessed for the substance of their nature. Payments which represent subcontracted research and development are expensed as the services are received. Payments which represent rights to the transfer of intellectual property, developed at risk by the third party, are capitalised.

For acquired research and development projects, patents and licences the likelihood of obtaining future commercial sales is reflected in the cost of the asset, and thus the probability recognition criteria is always considered to be satisfied. As the cost of acquired research and development projects can often be measured reliably, these projects fulfil the capitalisation criteria as intangible assets on acquisition. Subsequent milestone payments payable on achievement of a contingent event (e.g. commencement of phase 3 trials) are accrued and capitalised into the cost of the intangible asset when the achievement of the event is probable. However, further internal development costs subsequent to acquisition are treated in the same way as other internal development costs.

Key accounting estimates of impairment of assets
Intangible assets with an indefinite useful life and intangible assets not yet available for use are not subject to amortisation. They are tested annually for impairment, irrespective of whether there is any indication that they may be impaired.

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Factors considered material that could trigger an impairment test include the following:

- Development of a competing drug
- Changes in the legal framework covering patents, rights and licences
- Advances in medicine and/or technology that affect the medical treatments
- Lower-than-predicted sales
- Adverse impact on reputation and/or brand names
- Changes in the economic lives of similar assets
- Relationship to other intangible assets or property, plant and equipment
- Changes or anticipated changes in participation rates or reimbursement policies.

If the carrying amount of intangible assets exceeds the recoverable amount based on the existence of one or more of the above indicators of impairment, any impairment is measured based on discounted projected cash flows. Impairments are reviewed at each reporting date for possible reversal.

Intangible assets

DKK million	2019	2018
Patents and licences	4,627	3,858
Software	1,208	1,287
Total intangible assets	5,835	5,145

Additions
Additions to intangible assets amount to DKK 2,179 million. The additions related to patents and licences amount to DKK 1,599 million (DKK 1,403 million in 2018) within Diabetes and Obesity care and DKK 359 million (DKK 1,165 million in 2018) within Biopharm. Please refer to note 5.2 Commitment for an overview of total contractual commitments.

In 2018 and 2019 Novo Nordisk both acquired intellectual property and entered into major patent and licence agreements, as summarised below. Upfront fees and acquisition costs have been capitalised and subsequent milestone payments payable on achievement of a contingent event will be capitalised on the contingent event being probable of being achieved.

2019 additions

Dicerna
Novo Nordisk has entered into a collaboration and license agreement providing development and commercialisation rights to novel therapies for the treatment of liver-related cardio-metabolic diseases using Dicerna's proprietary GalXC™ RNAi platform technology. The addition relates to the Diabetes and Obesity care segment.

Priority review voucher
During 2019 Novo Nordisk acquired a priority review voucher intended for use in the Diabetes and Obesity care segment.

Esperoct™ milestones
Novo Nordisk has capitalised two milestone payments to the business partner following EU and FDA approval of Esperoct™. The additions relate to the Biopharm segment.

2018 additions

Macrilen™
Novo Nordisk has acquired the US and Canadian rights to Macrilen™ (macimorelin), the first and only FDA-approved oral growth hormone receptor indicated for the diagnosis of Adult Growth Hormone Deficiency, a rare endocrine disorder. The acquisition relates to the Biopharm segment.

Priority review voucher
During 2018 Novo Nordisk acquired a priority review voucher which has been fully amortised on notification and commitment to the FDA in December 2018 of the intent to use the Priority Review Voucher for the oral semaglutide New Drug Application (NDA) filing. The acquisition relates to the Diabetes and Obesity care segment.

Ziylo Ltd
Novo Nordisk has acquired full rights to Ziylo's glucose binding molecule platform to develop glucose responsive insulins. The acquisition relates to the Diabetes and Obesity care segment.

3.1 Intangible assets (continued)

Amortisation and impairment losses
In 2019, an impairment loss of DKK 982 million was recognised (no impairment losses were recognised in 2018), substantially all of which related to patents and licences. DKK 282 million of the impairment was related to the Diabetes and Obesity care segment and DKK 700 million of the impairment was related to Biopharm. Of the total impairment loss, DKK 529 million was recognised in cost of goods sold and DKK 450 million in research and development costs. The impairment was a result of Management's review of projected future cash flows from marketable products and expectations related to patents and licences not yet in use.

The impairment losses related to marketable products were based on fair value less cost of disposal calculations. The projected future cash flows were prepared based on Management's expectations for market access, market share and development in net sales prices. Management has used a post-tax discount rate of 7%. The inherent risk and uncertainty related to cash flows were adjusted for in the expected future cash flows.

Intangible assets not yet in use amount to DKK 3,380 million (DKK 2,612 million in 2018), primarily patents and licences in relation to research and development projects. Impairment tests in 2019 and 2018 of patents and licences not yet in use are based on Management's projections and anticipated net present value of estimated future cash flows from marketable products. Terminal values used are based on the expected life of products, forecasted life cycle and cash flow over that period, and the useful life of the underlying assets.

Amortisation and impairment losses

DKK million	2019	2018
Cost of goods sold	916	208
Sales and distribution costs	24	15
Research and development costs	522	769
Administrative costs	3	2
Other operating income, net	4	6
Total amortisation and impairment losses	**1,469**	1,000
Total amortisation	**487**	1,000
Total impairment losses	**982**	—

3.2 Property, plant and equipment

Novo Nordisk´s approach to managing operating assets is to retain assets for research, development and production activities under the company's own control, and to lease non-core assets related to e.g. administration and distribution. Management believes this is a significant factor in maintaining the quality of the company´s products.

Accounting policies
Property, plant and equipment is measured at historical cost less accumulated depreciation and any impairment loss. The cost of self-constructed assets includes costs directly and indirectly attributable to the construction of the assets. Any subsequent cost is included in the asset's carrying amount or recognised as a separate asset only when it is probable that future economic benefits associated with the item will flow to Novo Nordisk and the cost of the item can be measured reliably. Depreciation is based on the straight-line method over the estimated useful lives of the assets:

- Buildings: 12-50 years
- Plant and machinery: 5-20 years
- Other equipment: 3-10 years
- Land: not depreciated.

The depreciation commences when the asset is available for use, i.e. when it is in the location and condition necessary for it to be capable of operating in the manner intended by Management.

The assets' residual values and useful lives are reviewed and adjusted, if appropriate, at the end of each reporting period. If an asset's carrying amount is higher than its estimated recoverable amount, it is written down to the recoverable amount.

Plant and equipment with no alternative use developed as part of a research and development project are expensed. However, plant and equipment with an alternative use or used for general research and development purposes are capitalised and depreciated over the estimated useful life as research and development costs.

Capital expenditure in the reported period was primarily related to investments in facility upgrades and new production facilities for active pharmaceutical ingredients for diabetes, mainly the facility in Clayton, US. The facility in Clayton will also be used for tableting and packing of oral products.

Capital expenditure also related to new diabetes filling capacity in Hillerød. The facility will serve as a backup production facility for the US market and act as a launch site for new injectable diabetes products.

Finally, capital expenditure related to expansion of the facility in Chartres, France. The investment will establish FlexTouch® assembly and packaging capacity at the Chartres site.

Depreciation and impairment losses

DKK million	2019	2018
Cost of goods sold	2,656	2,312
Sales and distribution costs	354	69
Research and development costs	783	468
Administrative costs	376	70
Other operating income, net	23	6
Total depreciation and impairment losses	**4,192**	2,925

3.2 Property, plant and equipment (continued)

Property, plant and equipment

DKK million	Land and buildings	Plant and machinery	Other equipment	Assets under construction	Total
2019					
Cost at the beginning of the year	25,401	25,412	4,779	16,846	72,438
Change in accounting policy, leases	3,291	—	487	—	3,778
Additions during the year	555	350	498	7,580	8,983
Disposals during the year	(407)	(504)	(244)	(74)	(1,229)
Transfer from assets under construction	1,277	2,248	665	(4,190)	—
Effect of exchange rate adjustment	143	88	30	189	450
Cost at the end of the year	30,260	27,594	6,215	20,351	84,420
Depreciation and impairment losses at the beginning of the year	9,770	17,871	2,906	—	30,547
Depreciation for the year	1,818	1,410	743	—	3,971
Impairment losses for the year	57	70	20	74	221
Depreciation and impairment losses reversed on disposals during the year	(160)	(504)	(229)	(74)	(967)
Effect of exchange rate adjustment	43	41	13	—	97
Depreciation and impairment losses at the end of the year	11,528	18,888	3,453	—	33,869
Carrying amount at the end of the year	18,732	8,706	2,762	20,351	**50,551**
2018					
Cost at the beginning of the year	22,032	23,799	4,469	14,361	64,661
Additions during the year	222	365	175	8,775	9,537
Disposals during the year	(267)	(1,422)	(178)	—	(1,867)
Transfer from assets under construction	3,448	2,667	295	(6,410)	—
Effect of exchange rate adjustment	(34)	3	18	120	107
Cost at the end of the year	25,401	25,412	4,779	16,846	72,438
Depreciation and impairment losses at the beginning of the year	8,934	17,808	2,672	—	29,414
Depreciation for the year	1,047	1,377	385	—	2,809
Impairment losses for the year	49	63	4	—	116
Depreciation and impairment losses reversed on disposals during the year	(235)	(1,346)	(163)	—	(1,744)
Effect of exchange rate adjustment	(25)	(31)	8	—	(48)
Depreciation and impairment losses at the end of the year	9,770	17,871	2,906	—	30,547
Carrying amount at the end of the year	15,631	7,541	1,873	16,846	41,891

3.3 Leases

Accounting policies

Novo Nordisk mainly leases office buildings, warehouses, laboratories and vehicles.

For contracts which are, or contain, a lease, the Group recognises a right-of-use asset and a lease liability. The right-of-use asset is initially measured at cost, being the initial amount of the lease liability. The right-of-use asset is subsequently depreciated using the straight-line method over the lease term. The right-of-use asset is periodically adjusted for certain remeasurements of the lease liability and reduced by any impairment losses.

The lease term determined by the Group is the non-cancellable period of a lease, together with extension/termination option if these are reasonably certain to be exercised.

When determining the term, Management considers multiple factors that create economic incentives to exercise an option to extend the lease or not to terminate the lease, including termination penalties, potential relocation costs and whether significant leasehold improvements have been capitalised on the lease, with a remaining useful life which exceeds the fixed minimum duration of the lease.

For contracts with a rolling term (evergreen leases), the Group estimates the leasing period to be equal to the termination period if no probable scenario exists for estimating the leasing period.

The lease liability is initially measured at the present value of the lease payments outstanding at the commencement date, discounted using the incremental borrowing rate. Lease payments consist of the following payments:

- fixed payments from commencement date
- certain variable payments
- residual value guarantees or the exercise price of a purchase option
- termination penalties

The lease liability is measured using the effective interest method.

The lease liability is remeasured when there is a change in future lease payments, typically due to a change in index or rate (e.g. inflation) on property leases, or if there is a reassessment of whether an extension or termination option will be exercised. A corresponding adjustment is made to the right-of-use asset, or in the income statement when the right-of-use asset has been fully depreciated.

The right-of-use asset is presented in property, plant and equipment and the lease liability in borrowings.

3.3 Leases (continued)

New lease contracts with a lease term of 12 months or less and lease of low value assets are not recognised on the balance sheet. These are expensed on a straight-line basis over the lease term or another systematic basis. Lease of low value assets include personal computers, telephones and small items of office equipment.

Variable lease payments may depend on an index, a rate or other elements. Variable lease payments that depend on an index or a rate are included in the initial measurement of the lease liability using the index/rate at the lease commencement date. Variable lease payments not based on an index or a rate are recognised as an expense in the income statement as incurred.

Residual value guarantees that are expected to be paid are included in the initial measurement of the lease liability. Please refer to note 4.2.

As of 31 December 2019, the lease liability excludes DKK 2,760 million (undiscounted) of potential lease payments related to lease term extension rights on properties, which were not considered reasonably certain to be exercised.

Property, plant and equipment presented in the balance sheet includes the following right-of-use assets.

Right-of-use assets in the balance sheet

DKK million	Land and buildings	Other equipment	Total
2019			
Balance at 1 January	3,291	487	3,778
Additions during the year	333	307	640
Depreciation for the year	(564)	(288)	(852)
Other movements	(31)	(3)	(34)
Balance at 31 December	3,029	503	**3,532**

Amounts recognised in the income statement

DKK million	2019
Depreciation	852
Interest on lease liabilities	108
Variable lease expenses	113
Short-term leases	201
Lease of low value assets	63
Total amounts recognised in the income statement	**1,337**

The lease costs for 2018 were DKK 1,299 million.

Amounts recognised in the cash flow statement

DKK million	
Total cash outflow for leases	**1,295**

Please refer to note 4.2 for a maturity analysis of lease payments.

3.4 Inventories

Accounting policies
Inventories are stated at cost or net realisable value, whichever is lower. Cost is determined using the first-in, first-out method. Cost comprises direct production costs such as raw materials, consumables and labour as well as indirect production costs. Production costs for work in progress and finished goods include indirect production costs such as employee costs, depreciation, maintenance, etc.

If the expected sales price less completion costs to execute sales (net realisable value) is lower than the carrying amount, a write-down is recognised for the amount by which the carrying amount exceeds its net realisable value.

Inventory manufactured prior to regulatory approval (prelaunch inventory) is capitalised but immediately provided for, until there is a high probability of regulatory approval for the product. A write-down is made against inventory, and the cost is recognised in the income statement as research and development costs. Once there is a high probability of regulatory approval being obtained, the write-down is reversed, up to no more than the original cost.

In March 2019, Novo Nordisk filed oral semaglutide for US regulatory approval of glycaemic control. Subsequent to filing, write-downs on prelaunch inventory was reversed with a net positive income statement effect of DKK 510 million on research and development costs. Regulatory approval was obtained in September 2019.

Key accounting estimate of indirect production costs capitalised and inventory write-downs
Indirect production costs account for approximately 50% of the net inventory value, reflecting a lengthy production process compared with low direct raw material costs. The production of both Diabetes and Obesity care and Biopharm products is highly complex from fermentation to purification and formulation, including quality control of all production processes. Furthermore, the process is very sensitive to manufacturing conditions. These factors all influence the parameters for capitalisation of indirect production costs at Novo Nordisk and the full cost of the products. Indirect production costs are measured using a standard cost method. This is reviewed regularly to ensure relevant measures of capacity utilisation, production lead time, cost base and other relevant factors, hence inventory is valued at actual cost. When calculating total inventory, Management must make judgements about cost of production, standard cost variances and idle capacity in estimating indirect production costs for capitalisation. Changes in the parameters for calculation of indirect production costs could have an impact on the gross margin and the overall valuation of inventories.

Inventories

DKK million	2019	2018
Raw materials	2,842	2,464
Work in progress	11,375	11,753
Finished goods	4,850	4,078
Total inventories (gross)	19,067	18,295
Write-downs at year-end	(1,426)	(1,959)
Total inventories (net)	**17,641**	16,336
Indirect production costs included in work in progress and finished goods	9,216	8,533
Share of total inventories (net)	52%	52%
Movements in inventory write-downs		
Write-downs at the beginning of the year	1,959	2,219
Write-downs during the year	414	509
Utilisation of write-downs	(68)	(409)
Reversal of write-downs	(879)	(360)
Write-downs at the end of the year	1,426	1,959

All write-downs in both 2018 and 2019 relate to fully impaired inventory.

3.5 Trade receivables

Accounting policies
Trade receivables are initially recognised at fair value and subsequently measured at amortised cost using the effective interest method, less allowance for doubtful trade receivables.

Before being sold, trade receivables in factoring portfolios are measured at fair value with changes recognised in other comprehensive income.

The allowance for doubtful receivables is deducted from the carrying amount of Trade receivables, and the amount of the loss is recognised in the income statement under Sales and distribution costs. Subsequent recoveries of amounts previously written off are credited against sales and distribution costs.

Novo Nordisk's customer base comprises government agencies, wholesalers, retail pharmacies and other customers. Management makes allowance for doubtful trade receivables based on the simplified approach to provide for expected credit losses, which permits the use of the lifetime expected loss provision for all trade receivables. The allowance is an estimate based on shared credit risk characteristics and the days past due. Generally, invoices are due for payment within 90 days of shipment of goods.

Loss allowance is calculated using an ageing factor, geographical risk and specific customer knowledge. The allowance is based on a provision matrix on days past due and a forward looking element relating mainly to incorporation of the Dun & Bradstreet country risk rating and an individual assessment. Please refer to note 4.3 for a general description of credit risk.

Many of the countries within Region AAMEO have significant sales and low credit ratings. As such, this region has a relatively high impact on the allowance for doubtful trade receivables.

Novo Nordisk closely monitors the current economic conditions of countries impacted by currency fluctuations, high inflation and an unstable political climate. These indicators as well as payment history are taken into account in the valuation of trade receivables. Please refer to note 2.2 for a geographical split of trade receivables and allowance for doubtful trade receivables, and notes 4.3 and 4.8 for the trade receivable programmes.

Trade receivables

DKK million **2019**	Gross carrying amount	Loss allowance	Net carrying amount
Not yet due	24,359	(763)	23,596
1-90 days	1,204	(127)	1,077
91-180 days	261	(69)	192
181-270 days	96	(49)	47
271-360 days	79	(79)	—
More than 360 days past due	397	(397)	—
Trade receivables	**26,396**	**(1,484)**	**24,912**

DKK million 2018	Gross carrying amount	Loss allowance	Net carrying amount
Not yet due	22,359	(692)	21,667
1-90 days	1,055	(111)	944
91-180 days	235	(79)	156
181-270 days	60	(41)	19
271-360 days	76	(76)	—
More than 360 days past due	371	(371)	—
Trade receivables	**24,156**	**(1,370)**	**22,786**

Movements in allowance for doubtful trade receivables	**2019**	2018
Carrying amount at the beginning of the year	1,370	1,294
Reversal of allowance on realised losses	(45)	(25)
Net movement recognised in income statement	158	164
Effect of exchange rate adjustment	1	(63)
Allowance at the end of the year	**1,484**	1,370

3.6 Retirement benefit obligations

Accounting policies

Defined contribution plans

Novo Nordisk operates a number of defined contribution plans throughout the world. These plans are externally funded in entities that are legally separate from the Group. Novo Nordisk's contributions to the defined contribution plans are charged to the income statement in the year to which they relate.

Defined benefit plans

In a few countries, Novo Nordisk operates defined benefit plans, primarily located in the US, Germany, Switzerland and Japan. In Germany and Switzerland, the defined benefit plans are partly reimbursed by international insurance companies. The risk related to the plan assets in these countries is therefore limited to counterparty risk against these insurance companies.

Recognition of defined benefit plans

The costs for the year for defined benefit plans are determined using the projected unit credit method. This reflects services rendered by employees to the valuation dates and is based on actuarial assumptions primarily regarding discount rates used in determining the present value of benefits and projected rates of remuneration growth. Discount rates are based on the market yields of high-rated corporate bonds in the country concerned.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to other comprehensive income in the period in which they arise. Past service costs are recognised immediately in the income statement.

Pension plan assets are only recognised to the extent that Novo Nordisk is able to derive future economic benefits such as refunds from the plan or reductions of future contributions.

Costs recognised for retirement benefits are included in cost of goods sold, sales and distribution costs, research and development costs, and administrative costs. The total cost recognised for the year amounts to DKK 151 million (DKK 73 million in 2018).

The net obligation recognised in the balance sheet is reported as non-current liabilities.

Net retirement benefit obligations DKK million	**2019**	2018
Retirement benefit obligations	2,508	2,488
Fair value of plan assets	1,174	1,232
Net retirement benefit obligations at the end of the year	**1,334**	1,256

The present value of partly funded retirement benefit obligations amounts to DKK 1,845 million (DKK 1,841 million in 2018). The present value of unfunded retirement benefit obligations amounts to DKK 663 million (DKK 647 million in 2018).

Net remeasurement is a loss of DKK 187 million (gain of DKK 87 million in 2018), primarily related to changes in financial assumptions (discount rate), and is included in other comprehensive income.

Please refer to note 5.2 for a maturity analysis of the net retirement benefit obligation. Novo Nordisk does not expect the contributions over the next five years to differ significantly from current contributions.

Actuarial valuations are performed annually for all major defined benefit plans. Assumptions regarding future mortality are based on actuarial advice in accordance with published statistics and experience in each country. Other assumptions such as medical cost trend rate and inflation are also considered in the calculation.

Significant actuarial assumptions for the determination of the retirement benefit obligation (not considering plan assets) are discount rate and expected future remuneration increases. The sensitivity analysis below has been determined based on reasonably likely changes in the assumptions occurring at the end of the period.

The sensitivities below consider the single change shown with the other assumptions assumed to be unchanged. The table shows the NPV impact of net retirement liabilities.

Key assumptions used for valuation and sensitivity analysis

DKK million	Key assumptions	1 %-point increase	1 %-point decrease
2019			
Discount rate (decrease)/increase	1.3%	(366)	465
Future remuneration growth (decrease)/increase	2.4%	105	(94)
2018			
Discount rate (decrease)/increase	2.1%	(369)	458
Future remuneration growth (decrease)/increase	2.5%	99	(89)

3.7 Provisions and contingent liabilities

Accounting policies
Provisions for sales rebates and discounts granted to government agencies, wholesalers, retail pharmacies, Managed Care and other customers are recorded at the time the related revenues are recorded or when the incentives are offered. Provisions are calculated based on historical experience and the specific terms in the individual agreements. Unsettled rebates are recognised as provisions when the timing or amount is uncertain. Where absolute amounts are known, the rebates are recognised as other liabilities. Please refer to note 2.1 for further information on sales rebates and provisions.

Provisions for legal disputes are recognised where a legal or constructive obligation has been incurred as a result of past events and it is probable that there will be an outflow of resources that can be reliably estimated. In this case, Novo Nordisk arrives at an estimate based on an evaluation of the most likely outcome. Disputes for which no reliable estimate can be made are disclosed as contingent liabilities.

Provisions are measured at the present value of the anticipated expenditure for settlement. This is calculated using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision for interest is recognised as a financial expense.

Novo Nordisk issues credit notes for expired goods as a part of normal business. Where there is historical experience or a reasonably accurate estimate of expected future returns can otherwise be made, a provision for estimated product returns is recorded. The provision is measured at gross sales value.

Key accounting estimate regarding ongoing legal disputes, litigation and investigations
Provisions for legal disputes consist of various types of provision linked to ongoing legal disputes. Management makes estimates regarding provisions and contingencies, including the probability of pending and potential future litigation outcomes. These are by nature dependent on inherently uncertain future events. When determining likely outcomes of litigation, etc. Management considers the input of external counsels on each case, as well as known outcomes in case law.

Although Management believes that the total provisions for legal proceedings are adequate based on currently available information, there can be no assurance that there will not be any changes in facts or matters, or that any future lawsuits, claims, proceedings or investigations will not be material.

Provisions

DKK million	Provisions for sales rebates	Provisions for legal disputes	Provisions for product returns	Other provisions[1]	**2019 total**	2018 total
At the beginning of the year	25,760	1,860	869	1,064	29,553	24,057
Additional provisions, including increases to existing provisions	102,782	650	679	510	104,621	83,337
Amount used during the year	(98,655)	(4)	(424)	(161)	(99,244)	(79,243)
Adjustments, including unused amounts reversed during the year	381	(156)	(48)	(29)	148	314
Effect of exchange rate adjustment	610	25	6	14	655	1,088
At the end of the year	30,878	2,375	1,082	1,398	**35,733**	29,553
Non-current liabilities[2]	551	2,375	300	1,387	4,613	3,392
Current liabilities	30,327	—	782	11	31,120	26,161

1. Other provisions consists of various types of provision, including obligations in relation to employee benefits such as jubilee benefits, company-owned life insurance, etc.
2. For non-current liabilities, provision for sales rebates is expected to be settled after one year, provisions for product returns will be utilised in 2021 and 2022. In the case of provisions for legal disputes, the timing of settlement cannot be determined.

Contingent liabilities
Novo Nordisk is currently involved in pending litigations, claims and investigations arising out of the normal conduct of its business. While provisions that Management deems to be reasonable and appropriate have been made for probable losses, there are uncertainties connected with these estimates. Novo Nordisk does not expect the pending litigations, claims and investigations, individually and in the aggregate, to have a material impact on Novo Nordisk's financial position, operating profit or cash flow in addition to the amounts accrued as provision for legal disputes.

Pending litigation against Novo Nordisk
Novo Nordisk, along with the majority of incretin-based product manufacturers in the United States, is a defendant in product liability lawsuits related to use of incretin-based medications. As of 3 February 2020, 332 plaintiffs have named Novo Nordisk in product liability lawsuits, predominantly claiming damages for pancreatic cancer that allegedly developed as a result of using Victoza® and other GLP-1/DPP-IV incretin-based products. 209 of the Novo Nordisk plaintiffs have also named other defendants in their lawsuits. Most Novo Nordisk plaintiffs have filed suit in California federal and state courts. Novo Nordisk does not currently have any individual trials scheduled in 2020. Novo Nordisk does not expect the pending claims to have a material impact on its financial position, operating profit or cash flow.

Since January 2017, several class action lawsuits have been filed against Novo Nordisk, former CEO Lars Rebien Sørensen, former CFO Jesper Brandgaard and former President of Novo Nordisk Inc. Jakob Riis in the United States District Court for the District of New Jersey on behalf of all purchasers of Novo Nordisk American Depositary Receipts between February 2015 and February 2017. All lawsuits have been consolidated into one case. The lawsuit alleges that Novo Nordisk artificially inflated its financial results, failed to disclose pricing pressure and rising rebate payments to PBMs, and made other materially misleading statements to potential investors. Novo Nordisk does not expect the litigation to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

3.7 Provisions and contingent liabilities (continued)

In August 2019, a securities lawsuit was filed against Novo Nordisk in Denmark by a number of institutional shareholders. The claim is for a total amount of DKK 11.6 billion based on trading and holding of shares in Novo Nordisk during the period between February 2015 and February 2017. The lawsuit alleges that Novo Nordisk made misleading statements and did not make appropriate disclosures regarding its sales of insulin products in the US. It appears to contain broadly similar allegations to those of the previously disclosed securities class action lawsuit filed in the US in 2017 on behalf of all purchasers of Novo Nordisk American Depository Receipts. Novo Nordisk does not expect the lawsuit to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

Since January 2017, thirteen lawsuits, including several putative class actions, have been filed in various federal and state courts against Novo Nordisk Inc., Sanofi, Eli Lilly, and others relating to the pricing of diabetes medicines. Six of these lawsuits were consolidated into one matter pending in the United States District Court for the District of New Jersey, yet one of these six lawsuits was later deconsolidated and voluntarily dismissed without prejudice. Additionally, two of the thirteen lawsuits were also voluntarily dismissed in 2019 and 2020. Accordingly, six lawsuits remain pending against Novo Nordisk in various jurisdictions. Three lawsuits are pending in the same New Jersey federal court as the consolidated matter referenced above, while two other lawsuits are pending in other jurisdictions (Kentucky state court and Texas federal court). All pending matters allege that the manufacturers and Pharmacy Benefit Managers (PBMs) colluded to artificially inflate list prices paid by consumers for diabetes products, while offering reduced prices to PBMs through rebates used to secure formulary access. Novo Nordisk does not expect the lawsuits to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

Pending claims against Novo Nordisk and investigations involving Novo Nordisk
Several authorities in the US have served Novo Nordisk with Civil Investigative Demands (CIDs) or subpoenas calling for the production of documents and information. Below is a list of ongoing matters:

- United States Department of Justice CID (2016) and Washington State Attorney General's Office CID (2014 and 2016) both relating to, among other things, the promotion and marketing of NovoSeven®, interactions with physicians and patients, and the use of haemophilia-related patient support programmes.
- Washington Attorney General's Office CID (2017), relating to, among other things, pricing and trade practices for insulin products, including Levemir®, NovoLog®, and Novolin®, from 1 January 2005 through the present date.
- New Mexico Attorney General's Office CID (2017), relating to, among other things, trade practice and pricing of insulin products, namely NovoLog® and Novolin® from 1 January 2012 through the present date.
- Texas Attorney General's Office CID (2019), relating to, among other things, marketing and promotional practices for Ozempic®.
- New York State Attorney General's Office Subpoena (2019), relating to, among other things, pricing and trade practices for insulin products, from 1 July 2013 through the present.
- Colorado Attorney General's Office CID (2019), relating to, among other things, pricing and trade practices for insulin products, for the period from 1 January 2010 to present.

In all matters Novo Nordisk is cooperating with the authority in question. Novo Nordisk does not expect the above investigations to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

Novo Nordisk is one of several pharmaceutical companies that received requests for information involving pricing practices for its diabetes products from several committees of the Unites States House of Representatives and/or United States Senate. Novo Nordisk is working with the staff of the various committees to respond to their questions. Novo Nordisk does not expect the inquiries to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

Other contingent liabilities
In addition to the above, the Novo Nordisk Group is engaged in certain litigation proceedings and various ongoing audits and investigations. In the opinion of Management, neither settlement or continuation of such proceedings, nor such pending audits and investigations, are expected to have a material effect on Novo Nordisk's financial position, operating profit or cash flow.

3.8 Other liabilities

Other liabilities primarily comprises employee cost payables, payables related to non-current assets and sales rebates.

Section 4
Capital structure and financial items

4.1 Share capital, distributions to shareholders and earnings per share

Share capital

DKK million	A share capital	B share capital	Total share capital
Development in share capital:			
Share capital 2016	107	403	510
Cancelled in 2017	—	(10)	(10)
Cancelled in 2018	—	(10)	(10)
Share capital at the beginning of the year	107	383	490
Cancelled in 2019	—	(10)	(10)
Share capital at the end of the year	107	373	**480**

At the end of 2019, the share capital amounted to DKK 107 million in A share capital (equal to 537 million A shares of DKK 0.20) and DKK 373 million in B share capital (equal to 1,863 million B shares of DKK 0.20). Each A share carries 200 votes and each B share carries 20 votes.

Cash distribution to shareholders

Novo Nordisk paid out an interim dividend of DKK 3.00 per share in August 2019. The net cash distribution to shareholders in the form of dividends and share repurchases amounts to DKK 34.7 billion, compared with a free cash flow of DKK 34.5 billion. This is in line with the guiding principle of paying out excess capital to investors after funding organic growth and potential acquisitions.

DKK million	**2019**	2018	2017
Interim dividend for the year	7,100	7,238	7,396
Dividend for prior year	12,309	11,810	11,448
Share repurchases for the year	15,334	15,567	16,845
Total	**34,743**	34,615	35,689

The total dividend for 2019 amounts to DKK 19,651 million (DKK 8.35 per share). The 2019 final dividend of DKK 12,551 million (DKK 5.35 per share) is expected to be distributed pending approval at the Annual General Meeting. The interim dividend of DKK 7,100 million (DKK 3.00 per share) was paid in August 2019. The total dividend for 2018 was DKK 19,547 million (DKK 8.15 per share), of which the final dividend of DKK 12,309 million (DKK 5.15 per share) was paid in March 2019. No dividend is declared on treasury shares.

According to Danish corporate law, reserves available for distribution as dividends are based on the financial statements of the parent company, Novo Nordisk A/S. Dividends are paid from distributable reserves. Share premium is a distributable reserve and any former share premium reserve has been fully distributed.
As at 31 December 2019, distributable reserves total DKK 40,801 million (2018: DKK 38,816 million), corresponding to the parent company's retained earnings.

Treasury shares

Accounting policies

Treasury shares are deducted from the share capital on cancellation at their nominal value of DKK 0.20 per share. Differences between this amount and the amount paid to acquire or received for disposing of treasury shares are deducted directly in Equity.

				2019	2018
	Market value, DKK million	As % of share capital before cancellation	As % of share capital after cancellation	Number of B shares of DKK 0.20 (million)	Number of B shares of DKK 0.20 (million)
Holding at the beginning of the year	16,610	2.3%		56	56
Cancellation of treasury shares	(14,895)	(2.0%)		(50)	(50)
Transfer regarding restricted stock units	(762)			(3)	(1)
Purchase during the year	15,334			45	51
Value adjustment	2,326			—	—
Holding at the end of the year	18,613		2.0%	**48**	56

Treasury shares are primarily acquired to reduce the company's share capital. In addition, a limited part is used to finance Novo Nordisk's long-term share-based incentive programme (restricted stock units) and restricted stock units to employees.

4.1 Share capital, distributions to shareholders and earnings per share (continued)

Novo Nordisk's guiding principle is that any excess capital, after the funding of organic growth opportunities and potential acquisitions, should be returned to investors. Novo Nordisk's dividend payouts are complemented by share repurchase programmes.

The purchase of treasury shares during the year relates to the remaining part of the 2018 share repurchase programme, totalling DKK 1.2 billion and the DKK 15 billion Novo Nordisk B share repurchase programme for 2019, of which DKK 0.9 billion was outstanding at year-end. The programme ended on 3 February 2020. Transfer of treasury shares relates to the long-term share-based incentive programme and restricted stock units to employees.

Earnings per share

Accounting policies
Earnings per share is presented as both basic and diluted earnings per share. Basic earnings per share is calculated as net profit divided by the average number of shares outstanding. Diluted earnings per share is calculated as net profit divided by the sum of average number of shares outstanding, including the dilutive effect of the outstanding share pool. Please refer to 'Financial definitions' for a description of calculation of the dilutive effect.

DKK million		2019	2018	2017
Net profit for the year		38,951	38,628	38,130
Average number of shares outstanding	in 1,000 shares	2,374,299	2,419,603	2,473,218
Dilutive effect of average outstanding share pool[1]	in 1,000 shares	4,359	4,814	4,875
Average number of shares outstanding, including dilutive effect of outstanding share pool	in 1,000 shares	2,378,658	2,424,417	2,478,093
Basic earnings per share	DKK	**16.41**	15.96	15.42
Diluted earnings per share	DKK	**16.38**	15.93	15.39

1. For further information on the outstanding share pool, please refer to note 5.1.

4.2 Borrowings

Contractual undiscounted cashflows

DKK million	Leases	Bank overdrafts[1]	Total
2019			
Within 1 year	847	659	1,506
1-3 years	1,424	—	1,424
3-5 years	734	—	734
More than 5 years	1,140	—	1,140
Total contractual undiscounted cash flows at the end of the year	**4,145**	**659**	**4,804**
Contractual discounted cash flows included in the balance sheet at the end of the year	**3,824**	**659**	**4,483**
Non-current liabilities	3,009	—	3,009
Current liabilities	815	659	1,474

1. Bank overdrafts includes DKK 595 million classified as financing activities (2018: DKK 506 million) and DKK 64 million classified as cash and cash equivalents (2018: DKK 9 million).

Reconciliation of liabilities arising from financing activities

			Non-cash movements				
DKK million	Beginning of the year	Cash flows	Additions	Disposals	Exchange rates	Other	End of the year
2019							
Lease liabilities	3,988	(822)	640	(57)	63	12	3,824
Bank overdrafts	506	81	—	—	8	—	595
Liabilities arising from financing activities	4,494	(741)	640	(57)	71	12	**4,419**
Bank overdrafts	9	55	—	—	—	—	64
Total borrowings	4,503	(686)	640	(57)	71	12	**4,483**

4.3 Financial risks

Novo Nordisk has centralised management of the Group's financial risks. The overall objectives and policies for the company's financial risk management are outlined in an internal Treasury Policy, which is approved by the Board of Directors. The Treasury Policy consists of the Foreign Exchange Policy, the Investment Policy, the Financing Policy and the policy regarding Credit Risk on Financial Counterparts, and includes a description of permitted use of financial instruments and risk limits.

Novo Nordisk only hedges commercial exposures and consequently does not enter into derivative transactions for trading or speculative purposes. Novo Nordisk uses a fully integrated Treasury Management System to manage all financial positions, and all positions are marked-to-market. Management has assessed the following key financial risks:

Type	Financial risk
Foreign exchange risk	High
Interest rate risk	Low
Liquidity risk	Low
Credit risk	Low

Foreign exchange risk
Foreign exchange risk is the most important financial risk for Novo Nordisk and can have a significant impact on the income statement, statement of comprehensive income, balance sheet and cash flow statement.

The overall objective of foreign exchange risk management is to reduce the short-term negative impact of exchange rate fluctuations on earnings and cash flow, thereby contributing to the predictability of the financial results.

The majority of Novo Nordisk's sales are in USD, EUR, CNY, JPY, CAD and GBP. The foreign exchange risk is most significant in USD, CNY and JPY, while the EUR exchange rate risk is regarded as low because of Denmark's fixed exchange rate policy towards EUR.

Novo Nordisk hedges existing assets and liabilities in key currencies as well as future expected cash flows up to a maximum of 24 months forward. Hedge accounting is applied to match the impact of the hedged item and the hedging instrument in the consolidated income statement. Management has chosen to classify the result of hedging activities as part of financial items.

During 2019, the hedging horizon varied between 6 and 13 months for USD, CNY, JPY, CAD and GBP. The currency hedging strategy balances risk reduction and cost of hedging by use of foreign exchange forwards and foreign exchange options matching the due dates of the hedged items. Expected cash flows are continually assessed using historical inflows, budgets and monthly sales forecasts. Hedge effectiveness is assessed on a regular basis. There is no expected ineffectiveness at 31 December 2019, primarily because hedging instruments match currencies of hedged cash flows.

The financial contracts existing at year-end cover the expected future cash flow for the following number of months:

	2019	2018
USD	9 months	11 months
CNY[1]	7 months	6 months
JPY	12 months	12 months
CAD	9 months	9 months
GBP	10 months	11 months

1. Chinese yuan traded offshore (CNH) is used to hedge Novo Nordisk's CNY currency exposure.

Key currencies

Exchange rate DKK per 100	**2019**	2018	2017
USD			
Average	667	631	660
Year-end	668	652	621
Year-end change	2.5%	5.1%	(12.0%)
CNY			
Average	97	95	98
Year-end	96	95	95
Year-end change	1.1%	(0.3%)	(6.9%)
JPY			
Average	6.12	5.72	5.88
Year-end	6.11	5.91	5.51
Year-end change	3.4%	7.3%	(8.6%)
CAD			
Average	503	487	508
Year-end	511	479	495
Year-end change	6.7%	(3.2%)	(5.5%)
GBP			
Average	852	842	849
Year-end	877	827	839
Year-end change	6.0%	(1.4%)	(3.5%)

Foreign exchange sensitivity analysis
A 5% increase/decrease in the year-end rate in the following currencies versus EUR and DKK would impact Novo Nordisk's operating profit estimated by Management as outlined in the table below:

	Estimated for	
DKK million	**2020**	2019
USD	1,950	2,000
CNY	450	350
JPY	150	160
CAD	130	90
GBP	100	85

At year-end, a 5% immediate increase/decrease in all other currencies versus EUR and DKK would affect other comprehensive income and the income statement as outlined in the table below:

DKK million	5% increase in all other currencies against DKK and EUR	5% decrease in all other currencies against DKK and EUR
2019		
Other comprehensive income	(1,811)	1,811
Income statement	199	(199)
Total	**(1,612)**	**1,612**
2018		
Other comprehensive income	(1,988)	1,988
Income statement	115	(115)
Total	(1,873)	1,873

A 5% depreciation of USD against all other currencies at 31 December 2019 would affect equity by DKK 1,298 million (2018: DKK 1,604 million) and the income statement by DKK 135 million (2018: DKK 157 million).

The foreign exchange sensitivity analysis comprises effects from the Group's cash, trade receivables and trade payables, current loans, current and non-current financial investments, lease liabilities, foreign exchange forwards and foreign exchange options at year-end. Anticipated currency transactions, investments and non-current assets are not included.

4.3 Financial risks (continued)

Interest rate risk
Novo Nordisk has no significant exposure to interest rate risk as it does not hold any significant interest-bearing marketable securities or non-current loans.

Liquidity risk
The liquidity risk is considered to be low, and Novo Nordisk has limited debt financing. Novo Nordisk ensures the availability of the required liquidity through a combination of cash management, highly liquid investment portfolios and both uncommitted and committed credit facilities. Novo Nordisk uses cash pools for optimisation and centralisation of cash management.

Credit risk
Credit risk arises from the possibility that transactional counterparties may default on their obligations, causing financial losses for the Group. Novo Nordisk considers its maximum credit exposure to financial counterparties to be DKK 15,663 million (2018: DKK 15,842 million). In addition, Novo Nordisk considers its maximum credit exposure to trade receivables, other receivables (less prepayments and VAT receivables) and other financial assets to be DKK 26,622 million (2018: DKK 25,065 million). Please refer to note 4.8 for details of the Group's total financial assets.

To manage credit risk regarding financial counterparties, Novo Nordisk only enters into derivative financial contracts and money market deposits with financial counterparties possessing a satisfactory long-term credit rating from at least two out of the three selected ratings agencies: Standard and Poor's, Moody's and Fitch. Furthermore, maximum credit lines defined for each counterparty diversify the overall counterparty risk. The table below shows Novo Nordisk's credit exposure on cash and financial derivatives.

Credit exposure for cash at bank and derivative financial instruments (market value)

DKK million	Cash at bank	Derivative financial instruments	Total
2019			
AA-range	7,471	139	7,610
A-range	7,145	49	7,194
BBB-range	314	—	314
Not rated or below BBB-range	545	—	545
Total	15,475	188	**15,663**
2018			
AA-range	7,989	90	8,079
A-range	7,212	114	7,326
BBB-range	246	—	246
Not rated or below BBB-range	191	—	191
Total	15,638	204	15,842

Outside the US, Novo Nordisk has no significant concentration of credit risk related to trade receivables or other receivables and prepayments, as the exposure in general is spread over a large number of counterparties and customers. In the US, the three major wholesalers account for a large proportion of total net sales, cf. note 2.2. However, US wholesaler credit ratings are monitored and a large proportion of the trade receivables are sold on full non-recourse terms; see below for details. Novo Nordisk continues to monitor the credit exposure in Region AAMEO due to the increasing sales and low credit ratings of many countries in this region.

Trade receivable programmes
Please refer to note 3.5 for the description of the loss allowance for the Group and the ageing analysis.

Novo Nordisk's subsidiaries in the US and Japan employ trade receivable programmes in which trade receivables are sold on full non-recourse terms to optimise working capital.

At year-end, the Group had derecognised receivables without recourse having due dates after 31 December 2019 amounting to:

DKK million	**2019**	2018	2017
US	3,672	3,587	3,328
Japan	2,149	1,937	2,024

In addition, full non-recourse off-balance sheet factoring arrangement programmes are occasionally applied by Novo Nordisk subsidiaries around the world, with limited impact on the Group's trade receivables.

Please refer to note 2.2 for the split of allowance for trade receivables by geographical segment.

4.4 Derivative financial instruments

Accounting policies
Novo Nordisk uses financial instruments to reduce the impact of foreign exchange on financial results.

Use of derivative financial instruments
The derivative financial instruments are used to manage the exposure to market risk. None of the derivatives are held for trading.

Novo Nordisk uses forward exchange contracts and, to a lesser extent, currency options to hedge forecast transactions, assets and liabilities. The overall policy is to hedge the majority of total currency exposure.

Net investments in foreign subsidiaries are currently not hedged.

Initial recognition and measurement
On initiation of the contract, Novo Nordisk designates each derivative financial contract that qualifies for hedge accounting as one of:

- hedges of the fair value of a recognised asset or liability (fair value hedge)
- hedges of the fair value of a forecast financial transaction (cash flow hedge).

All contracts are initially recognised at fair value and subsequently remeasured at fair value at the end of the reporting period.

Fair value hedges
Value adjustments of fair value hedges are recognised in the income statement along with any value adjustments of the hedged asset or liability that are attributable to the hedged risk.

Cash flow hedges
Value adjustments of the effective part of cash flow hedges are recognised directly in other comprehensive income. The cumulative value adjustment of these contracts is transferred from other comprehensive income to the income statement when the hedged transaction is recognised in the income statement.

Discontinuance of cash flow hedging
When a hedging instrument expires or is sold, 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 income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately transferred to the income statement under financial income or financial expenses.

Fair value determination
The fair value of derivative financial instruments is measured on the basis of quoted market prices of financial instruments traded in active markets. If an active market exists, the fair value is based on the most recently observed market price at the end of the reporting period.

If a financial instrument is quoted in a market that is not active, Novo Nordisk bases its valuation on the most recent transaction price.

Adjustment is made for subsequent changes in market conditions, for instance by including transactions in similar financial instruments assumed to be motivated by normal business considerations.

If an active market does not exist, the fair value of standard and simple financial instruments, such as foreign exchange forward contracts, interest rate swaps, currency swaps and unlisted bonds, is measured according to generally accepted valuation techniques. Market-based parameters are used to measure the fair value.

Derivative financial instruments	2019			2018		
DKK million	Contract amount at year-end	Positive fair value at year-end	Negative fair value at year-end	Contract amount at year-end	Positive fair value at year-end	Negative fair value at year-end
Forward contracts USD[1]	25,394	81	315	29,951	21	1,555
Forward contracts CNH, JPY, GBP and CAD	10,013	35	130	7,462	23	166
Forward contracts, cash flow hedges	35,407	116	445	37,413	44	1,721
Forward contracts USD	11,287	61	217	9,145	123	256
Forward contracts CNH, CAD, EUR, GBP and JPY	3,761	11	72	3,268	37	47
Forward contracts, fair value hedges	15,048	72	289	12,413	160	303
Total derivative financial instruments	**50,455**	**188**	**734**	49,826	204	2,024
Recognised in the income statement		72	289		160	303
Recognised in other comprehensive income		116	445		44	1,721

1. Average hedge rate for USD cash flow hedges is 654 at the end of 2019 and 610 at the end of 2018.

The above financial contracts are expected to impact the income statement within the next 12 months, with deferred gains and losses on cash flow hedges then being transferred to financial income or financial expenses.

4.5 Cash and cash equivalents, financial resources and free cash flow

Accounting policies
The cash flow statement shows how income and changes in balance sheet items affect cash and cash equivalents, in other words the cash generated or used in the period.

The cash flow statement is presented in accordance with the indirect method commencing with net profit for the year. Cash flows in foreign currencies are translated to DKK at the average exchange rate for the respective year.

Cash from operating activities converts income statement items from the accrual basis of accounting to cash basis. As such, starting with net profit, non-cash items are reversed and actual payments included. The change in working capital is also taken into account, as this shows the development in money tied up in the balance sheet. Cash from investing activities shows payments related to the purchase and sale of Novo Nordisk's long-term investments. This includes fixed assets such as construction of new production sites, intangible assets such as patents and licences, and financial assets.

Cash and cash equivalents consists of cash offset by short-term bank loans. Where short-term bank loans are consistently overdrawn, they are excluded from cash and cash equivalents. The movement in such facilities is presented under financing activities in the cash flow statement[1]. Financial resources consist of cash and cash equivalents, marketable securities with original maturity of less than three months and undrawn committed credit facilities expiring after more than one year.

Restricted cash
Cash and cash equivalents at 31 December 2019 includes DKK 509 million that is restricted (2018: DKK 120 million). The restricted cash balance relates to subsidiaries in which availability of currency for remittance of funds is temporarily scarce.

DKK million	2019	2018	2017
Cash and cash equivalents			
Cash at bank (note 4.3)	15,475	15,638	18,852
Borrowings (bank overdrafts)[1]	(64)	(9)	(1,694)
Cash and cash equivalents	**15,411**	15,629	17,158
Financial resources			
Cash and cash equivalents	15,411	15,629	17,158
Undrawn committed credit facility[2]	11,578	11,574	8,190
Borrowings (bank overdrafts)[1]	(595)	(506)	—
Financial resources[3]	**26,394**	26,697	25,348

1. Cash and cash equivalents at the beginning of 2018 has been adjusted for a DKK 412 million bank loan reclassified to financing activities. At 31 December 2019 bank overdrafts classified as financing activities totalled DKK 595 million (2018: DKK 506 million).
2. The undrawn committed credit facility in 2019 is a EUR 1,550 million facility (EUR 1,550 million in 2018 and EUR 1,100 million in 2017) committed by a portfolio of international banks. The facility matures in 2024.
3. Additional non-IFRS financial measure; please refer to 'Financial definitions', which is not part of the audited financial statements.

Free cash flow

DKK million	2019	2018	2017
Net cash generated from operating activities	46,782	44,616	41,168
Net cash used in investing activities	(11,509)	(12,080)	(6,571)
Net purchase of marketable securities	—	—	(2,009)
Repayment on lease liabilities	(822)	—	—
Free cash flow[4]	**34,451**	32,536	32,588

4. Additional non-IFRS financial measure; please refer to 'Financial definitions', which is not part of the audited financial statements.

4.6 Change in working capital

Accounting policies
Working capital is defined as current assets less current liabilities and measures the liquid assets Novo Nordisk has available for the business.

Change in working capital

DKK million	2019	2018	2017
Inventories	(1,305)	(963)	(1,032)
Trade receivables	(2,126)	(2,621)	69
Other receivables and prepayments[1]	(1,190)	(662)	(17)
Trade payables	(398)	1,146	(401)
Other liabilities[1]	1,202	(348)	265
Adjustment for payables related to non-current assets	295	84	(1,143)
Adjustment related to divestment of group companies	(42)	—	—
Change in working capital including exchange rate adjustments	**(3,564)**	(3,364)	(2,259)
Exchange rate adjustments	176	(6)	(1,375)
Cash flow change in working capital	**(3,388)**	(3,370)	(3,634)

1. Change in working capital includes adjustments in respect of implementation of IFRS 16, please refer to note 1.2.

4.7 Other non-cash items

For the purpose of presenting the cash flow statement, non-cash items with effect on the income statement must be reversed to identify the actual cash flow effect from the income statement. The adjustments are specified as follows:

Other non-cash items

DKK million	2019	2018	2017
Reversals of non-cash income statement items			
Interest income and interest expenses, net (note 4.9)	155	34	21
Capital gain/(loss) on investments, net etc (note 4.9)	145	(163)	25
Result of associated company (note 4.9)	137	(12)	(14)
Share-based payment costs (note 5.1)	363	414	292
Income from the divestment of group companies	(68)	(122)	—
Adjustment in non-cash items related to divestment of group companies	162	—	—
Increase/(decrease) in provisions (note 3.7) and retirement benefit obligations	6,071	5,503	214
Other	67	444	1,489
Total other non-cash items	**7,032**	6,098	2,027

4.8 Financial assets and liabilities

Accounting policies
The implementation of IFRS 9 from 1 January 2018 resulted in changes to the classification of financial assets. Key changes from the application of IFRS 9 were:

From 1 January 2018, Novo Nordisk's investments in minor shareholdings are measured and classified as fair value through the income statement (previously measurement was at fair value through other comprehensive income).

From 1 January 2018, all financial assets previously categorised as loans and receivables are classified as financial assets at amortised cost with the exception of certain portfolios of trade receivables which are either sold under master factoring agreements or collected from the customer. These specific portfolios of trade receivables are separately classified and measured at fair value through other comprehensive income.

Depending on purpose, Novo Nordisk classifies investments into the following categories:
- Financial assets at fair value through the income statement
- Financial assets at amortised cost
- Financial assets at fair value through OCI

Management determines the classification of its financial assets on initial recognition and re-evaluates this at the end of every reporting period to the extent that such a classification is permitted or required.

Recognition and measurement
Purchases and sales of financial assets are recognised on the settlement date. These are initially recognised at fair value.

Fair value disclosures are made separately for each class of financial instruments at the end of the reporting period.

Financial assets are removed from the balance sheet when the rights to receive cash flows have expired or have been transferred, and Novo Nordisk has transferred substantially all the risks and rewards of ownership.

Financial assets 'at fair value through the income statement'
Financial assets at fair value through the income statement consist of equity investments and forward exchange contracts. Equity investments are included in other financial assets unless management intends to dispose of the investment within 12 months of the end of the reporting period. In that case, the current part is included in other receivables and prepayments.

Net gains and losses arising from changes in the fair value of financial assets are recognised in the income statement as financial income or expenses.

The fair values of quoted investments are based on current bid prices at the end of the reporting period. Financial assets for which no active market exists are carried at fair value based on a valuation methodology.

Financial assets 'at amortised cost'
Financial assets at amortised cost are cash at bank and non-derivative financial assets solely with payments of principal and interest. Novo Nordisk normally 'holds-to-collect' the financial assets to attain the contractual cash flows. If collection is expected within one year (or in the normal operating cycle of the business if longer), they are classified as current assets. If not, they are presented as non-current assets.

Trade receivables and other receivables are recognised initially at fair value. Subsequently they are measured at amortised cost using the effective interest method, less allowance for doubtful receivables.

Financial assets 'at fair value through other comprehensive income'
Financial assets at fair value through other comprehensive income are trade receivables that are held to collect or to sell in factoring agreements.

Financial liabilities 'at fair value through the income statement'
Financial liabilities at fair value through the income statement consist of forward exchange contracts.

Financial liabilities 'at amortised cost'
Financial liabilities at amortised cost consist of bank overdrafts, trade payables and other liabilities.

Financial assets by category

DKK million	2019	2018
Financial assets at fair value through the income statement	**1,158**	969
Other financial assets[1]	970	765
Derivative financial instruments (note 4.4)	188	204
Financial assets at amortised cost	**28,418**	28,340
Other financial assets[1]	364	477
Trade receivables (note 3.5)[2]	12,203	11,188
Other receivables and prepayments (current and non-current)	4,275	3,090
- less prepayments and VAT receivables	(3,899)	(2,053)
Cash at bank (note 4.5)	15,475	15,638
Financial assets at fair value through OCI	**12,709**	11,598
Trade receivables in a factoring portfolio (note 3.5)[2]	12,709	11,598
Total financial assets at the end of the year by category[1]	**42,285**	40,907

1. Financial assets with the exception of other financial assets and non-current part of other receivables and prepayments (DKK 841 million) are all due within one year. Other financial assets at amortised cost include DKK 327 million which are due in more than 5 years (2018: DKK 377 million). Other financial assets measured at fair value through the income statement are minor shareholdings.
2. Trade receivables which are measured at fair value through OCI, which have no associated loss allowance.

Financial liabilities by category

DKK million	2019	2018
Financial liabilities measured at fair value through the income statement	**734**	2,024
Derivative financial instruments (note 4.4)	734	2,024
Financial liabilities measured at amortised cost	**25,448**	20,936
Borrowings (non-current)	3,009	—
Borrowings (current)	1,474	515
Trade payables	6,358	6,756
Other liabilities	15,085	14,098
- less VAT and duties payable	(478)	(433)
Total financial liabilities at the end of the year by category[3]	**26,182**	22,960

3. Please refer to note 4.2 for a maturity analysis for non-current and current borrowings. All other financial liabilities are due within one year.

4.8 Financial assets and liabilities (continued)

For a description of the credit quality of financial assets such as trade receivables, cash at bank, marketable securities, current debt and derivative financial instruments, refer to notes 4.3 and 4.4.

Fair value measurement hierarchy

DKK million	2019	2018
Active market data	846	649
Directly or indirectly observable market data	188	204
Not based on observable market data[1]	12,833	11,714
Total financial assets at fair value	**13,867**	12,567
Active market data	—	—
Directly or indirectly observable market data	734	2,024
Not based on observable market data	—	—
Total financial liabilities at fair value	**734**	2,024

1. The fair value of trade receivables in a factoring portfolio is calculated based on the net invoice amount (invoice amount less charge-backs) less the fee payable to the factoring entity. The factoring fee is insignificant due to the short period between the time of sale to the factoring entity and the invoice due date and the rate applicable. Inputs to the estimate of US wholesaler charge-backs are described in note 2.1.

Financial assets and liabilities measured at fair value can be categorised using the fair value measurement hierarchy above. There were no transfers between the 'Active market data' and 'Directly or indirectly observable market data' categories during 2019, 2018 or 2017. There are no significant intangible assets or items of property, plant and equipment measured at fair value.

4.9 Financial income and expenses

Accounting policies
As described in note 4.3, Management has chosen to classify the result of hedging activities as part of financial items in the income statement. Financial items primarily relate to foreign exchange elements and are mainly impacted by the cumulative value adjustment of cash flow hedges transferred from other comprehensive income to the income statement when the hedged transaction is recognised in the income statement. In addition, value adjustments of fair value hedges are recognised in financial income and financial expenses along with any value adjustments of the hedged asset or liability that are attributable to the hedged risk. Finally, value adjustments of foreign currency assets and liabilities in non-hedged currencies will impact financial income and financial expenses.

Financial income

DKK million	2019	2018	2017
Interest income[1]	65	51	69
Foreign exchange gain (net)	—	—	1,163
Financial gain from forward contracts (net)	—	1,656	—
Financial gain from currency options (net)	—	152	—
Capital gain on investments, etc.	—	251	—
Result of associated companies	—	12	14
Total financial income	**65**	2,122	1,246

Financial expenses

DKK million	2019	2018	2017
Interest expenses[1]	220	85	90
Foreign exchange loss (net)	539	1,510	—
Financial loss from forward contracts (net)	2,673	—	1,346
Financial loss from currency options (net)	—	—	4
Capital loss on investments, etc.	145	88	25
Result of associated companies	137	—	—
Other financial expenses	281	72	68
Total financial expenses	**3,995**	1,755	1,533

1. Total interest income and expenses is measured at amortised cost for financial assets and liabilities.

Financial impact from forward contracts and currency options, specified

DKK million	2019	2018	2017
Forward contracts			
Income/(loss) transferred from other comprehensive income	(1,677)	1,841	(2,016)
Value adjustment of transferred contracts	(1,609)	(1,299)	2,477
Unrealised fair value adjustments of forward contracts	(217)	(143)	116
Realised foreign exchange gain/(loss) on forward contracts	830	1,257	(1,923)
Financial income/(expense) from forward contracts	**(2,673)**	1,656	(1,346)
Currency options			
Realised income/(loss) transferred from other comprehensive income	—	186	61
Value adjustment of transferred options	—	(3)	(9)
Foreign exchange gain/(loss) on currency options	—	(31)	(56)
Financial income/(expense) from currency options	—	152	(4)

Section 5
Other disclosures

5.1 Share-based payment schemes

Accounting policies

Share-based compensation

Novo Nordisk operates equity-settled, share-based compensation plans. The fair value of the employee services received in exchange for the grant of shares is recognised as an expense and allocated over the vesting period.

The total amount to be expensed over the vesting period is determined by reference to the fair value of the shares granted, excluding the impact of any non-market vesting conditions. The fair value is fixed at the grant date, and adjusted for expected dividends during the vesting period. Non-market vesting conditions are included in assumptions about the number of shares that are expected to vest. At the end of each reporting period, Novo Nordisk revises its estimates of the number of shares expected to vest. Novo Nordisk recognises the impact of the revision of the original estimates, if any, in the income statement and in a corresponding adjustment to equity (change in proceeds) over the remaining vesting period. Adjustments relating to prior years are included in the income statement in the year of adjustment.

Share-based payment

Expensed in the income statement

DKK million	2019	2018	2017
Restricted stock units to employees	48	204	169
Long-term share-based incentive programme (Management Board)[1]	86	48	19
Long-term share-based incentive programme (management group below Management Board)	195	145	102
Shares allocated to individual employees	34	17	2
Share-based payment expensed in the income statement	363	414	292

1. In 2017 Novo Nordisk introduced, for the first time, a share-based compensation programme with terms which amortises the grant date valuation over four years. The 2019 expense includes amortisation of the 2017, 2018 and 2019 programmes.

Restricted stock units to employees

In appreciation of the efforts of employees during recent years, as of 1 August 2019, all employees in the company were offered 75 restricted stock units. A restricted stock unit gives the holder the right to receive one Novo Nordisk B share free of charge in February 2023 subject to continued employment. The cost of the DKK 660 million programme is amortised over the vesting period.

Long-term share-based incentive programme

Management Board

On 4 February 2020, the Board of Directors approved the allocation of a total of 508,398 Novo Nordisk B shares to the members of the Management Board for the 2019 financial year. The value at launch of the programme (adjusted for expected dividends) was DKK 152 million. On average, this corresponds to 14.7 months' fixed base salary plus pension contribution for the CEO, 11.0 months' fixed base salary plus pension contribution per executive vice president as of 1 March 2019 and 8.2 months' fixed base salary plus pension for senior vice presidents. The cost of the 2019 programme is amortised over the vesting period of 2019-2022 at an annual amount of DKK 38 million. The amount of shares allocated may be reduced or increased by up to 30%, depending on whether the average sales growth per year in the three-year vesting period deviates from a target set by the Board of Directors.

The grant date of the programme was February 2019, and the share price used for the determining the grant date fair value of the award was the average share price (DKK 322) for Novo Nordisk B shares on Nasdaq Copenhagen in the period 1-15 February 2019, adjusted for expected dividend. Based on the split of participants when the share allocation was decided, 43% of the allocated shares will be allocated to members of Executive Management and 57% to other members of the Management Board.

The shares allocated to the joint pool for 2016 were released to the individual participants subsequent to approval of the 2019 Annual Report by the Board of Directors and after the announcement of the 2019 full-year financial results on 5 February 2020. The shares allocated correspond to a value at launch of the programme of DKK 29 million, expensed in 2016.

Management group below Management Board

The management group below the Management Board has a share-based incentive programme with similar performance criteria. For 2019, a total of 1,300,333 shares were allocated to this group, corresponding to a value at launch of the programme (adjusted for expected dividends) of DKK 387 million. The cost of the 2019 programme is amortised over the vesting period of 2019-2022 at an annual amount of DKK 97 million. The amount of shares allocated may be reduced or increased by up to 30%, depending on whether the average sales growth per year in the three-year vesting period deviates from a target set by the Board of Directors.

The shares allocated for 2016 were released to the individual participants subsequent to approval of the 2019 Annual Report by the Board of Directors and after the announcement of the 2019 full-year financial results on 5 February 2020. The shares allocated correspond to a value at launch of the programme of DKK 68 million amortised over the period 2016-2019. The number of shares to be transferred (174,481 shares) is lower than the original number of shares allocated, as some participants had left the company before the programme's release conditions were met.

5.1 Share-based payment schemes (continued)

General terms and conditions of launched programmes

	Restricted stock units to employees			Shares for Management Board			Shares for Management group below Management Board		
	2019	2018	2017	**2019**	2018	2017	**2019**	2018	2017
Number of shares awarded in the year	2,148,580	—	—	508,398	411,090	356,195	1,300,333	1,114,455	761,826
Value per share at launch (DKK)	307	—	—	298	280	213	298	280	213
Vesting period	3.5 years	—	—	3 years	3 years	3 years	3 years	3 years	3 years
Allocated to recipients	Feb 2023			Feb 2023	Feb 2022	Feb 2021	Feb 2023	Feb 2022	Feb 2021
Total market value at launch (DKK million)	660	—	—	152	115	76	387	312	162
Amortisation period of the programme	2019 to 2023	—	—	2019 to 2022	2018 to 2021	2017 to 2020	2019 to 2022	2018 to 2021	2017 to 2020

Outstanding restricted stock units	**2019**	2018
Outstanding at the beginning of the year	5,584,019	4,833,882
Released restricted stock units to employees	(1,431,192)	(35,180)
Released shares allocated to Management in 2015	(1,040,593)	(764,474)
Released shares allocated to individual employees	(81,873)	(25,883)
Cancelled allocated shares	(262,596)	(209,308)
Allocated restricted stock units to employees	2,148,580	100,000
Shares allocated to Management in the year	1,808,731	1,525,545
Shares allocated to individual employees in the year	154,122	159,437
Outstanding at the end of the year	**6,879,198**	5,584,019

Outstanding restricted stock units	Issued[1]	Released (accumulated)	Cancelled (accumulated)	Outstanding	Value at launch date DKK million	Vesting date
Restricted stock units to employees						
2016 Restricted stock units	1,565,411	(1,475,572)	(89,839)	—	508	Q1 2019
2019 Restricted stock units	2,148,580	—	—	2,148,580	660	Q1 2023
Outstanding restricted stock units to employees	3,713,991	(1,475,572)	(89,839)	2,148,580		
Shares allocated to Management Board						
2015 Shares allocated to joint pool	378,943	(378,421)	(522)	—	108	Q1 2019
2016 Shares allocated to joint pool	96,705	—	(1,623)	95,082	29	Q1 2020
2017 Shares allocated to joint pool	356,195	—	(24,608)	331,587	76	Q1 2021
2018 Shares allocated	411,090	—	(20,077)	391,013	115	Q1 2022
2019 Shares allocated	508,398	—	—	508,398	152	Q1 2023
Outstanding shares for Management Board	1,751,331	(378,421)	(46,830)	1,326,080		
Shares allocated to pools for management group below Management Board						
2015 Shares allocated	879,988	(662,172)	(217,816)	—	251	Q1 2019
2016 Shares allocated	224,055	—	(49,574)	174,481	68	Q1 2020
2017 Shares allocated	761,826	—	(100,098)	661,728	162	Q1 2021
2018 Shares allocated	1,114,455	—	(77,812)	1,036,643	312	Q1 2022
2019 Shares allocated	1,300,333	—	—	1,300,333	387	Q1 2023
Outstanding shares for Management group below Management Board	4,280,657	(662,172)	(445,300)	3,173,185		
Shares allocated to individual employees	323,170	(81,873)	(9,944)	231,353	75	2020-2023
Outstanding at the end of 2019	10,069,149	(2,598,038)	(591,913)	**6,879,198**		

All restricted stock units and shares allocated to Management are hedged by treasury shares.

5.2 Commitments

Commitments
Total contractual obligations and recognised non-current debt can be specified as follows (payments due by period):

2019

DKK million	Within 1 year	1-3 years	3-5 years	More than 5 years	Total
Retirement benefit obligations	13	26	25	1,270	1,334
Leases (note 4.2)	847	1,424	734	1,140	4,145
Total obligations recognised in the balance sheet	860	1,450	759	2,410	5,479
Leases[1]	128	229	199	376	932
Research and development obligations	2,600	3,258	1,493	29	7,380
Research and development - potential milestone payments[3]	300	1,023	1,009	2,403	4,735
Commercial product launch - potential milestone payments[3]	—	—	—	3,468	3,468
Purchase obligations relating to investments in property, plant and equipment	172	—	—	—	172
Other purchase obligations	5,695	2,989	1,175	621	10,480
Total obligations not recognised in the balance sheet	8,895	7,499	3,876	6,897	27,167
Total contractual obligations	9,755	8,949	4,635	9,307	**32,646**

2018

DKK million	Within 1 year	1-3 years	3-5 years	More than 5 years	Total
Retirement benefit obligations	13	25	25	1,193	1,256
Total obligations recognised in the balance sheet	13	25	25	1,193	1,256
Operating leases[2]	1,007	1,463	915	1,511	4,896
Research and development obligations	2,014	1,715	968	75	4,772
Research and development - potential milestone payments[3]	550	833	818	2,091	4,292
Commercial product launch - potential milestone payments[3]	—	—	—	2,591	2,591
Purchase obligations relating to investments in property, plant and equipment	1,875	—	—	—	1,875
Other purchase obligations	4,392	2,536	1,095	406	8,429
Total obligations not recognised in the balance sheet	9,838	6,547	3,796	6,674	26,855
Total contractual obligations	9,851	6,572	3,821	7,867	28,111

1. Predominantly relates to estimated variable property taxes, leases committed not yet commenced and low value assets.
2. There were no material finance lease obligations in 2018.
3. Potential milestone payments are associated with uncertainty as they are linked to successful achievements in research activities.

The lease commitments are related to IFRS 16 leases primarily for premises and company cars and include the present value of future lease payments during the lease term. Approximately 74% of the commitments are related to leases outside Denmark.

The purchase obligations primarily relate to purchase agreements regarding medical equipment and consumer goods. Novo Nordisk expects to fund these commitments with existing cash and cash flow from operations.

Research and development obligations include contingent payments related to achieving development milestones. Such amounts entail uncertainties in relation to the period in which payments are due because a proportion of the obligations is dependent on milestone achievements. Exercise fees and subsequent milestone payments under in-licensing option agreements are excluded, as Novo Nordisk is not contractually obligated to make such payments. Commercial product launch milestones include contingent payments solely related to achievement of a commercial product launch following regulatory approval. Commercial milestones, royalty and other payments based on a percentage of sales generated from sale of goods following marketing approval are excluded from the contractual commitments analysis because of their contingent nature, related to future sales. The due periods disclosed are based on Management's best estimate.

DKK million	**2019**	2018
Other guarantees		
Other guarantees primarily relate to performance guarantees issued by Novo Nordisk	906	973

World Diabetes Foundation (WDF)
At the Annual General Meeting in 2014, a donation to WDF was approved. For the years 2018-2024, the donation is 0.1% of the Group's net insulin sales. The annual donation in this period cannot exceed DKK 90 million or 15% of the taxable income of Novo Nordisk A/S in the financial year in question, whichever is lower.

For 2019, the total donation amounts to DKK 86 million (DKK 85 million in 2018 and DKK 85 million in 2017).

5.3 Related party transactions

Novo Nordisk A/S is controlled by Novo Holdings A/S (incorporated in Denmark), which owns 28.1% of the share capital in Novo Nordisk A/S, representing 76.1% of the total number of votes. The remaining shares are widely held. The ultimate parent of the Group is the Novo Nordisk Foundation (incorporated in Denmark). Both entities are considered related parties.

As associated companies of Novo Nordisk A/S, NNIT Group and Churchill Stateside Solar Fund XIV, LLC ('CS Solar Fund XIV') are considered related parties. As an associated company of Novo Holdings A/S, Unchained Labs, Inc. is considered a related party to Novo Nordisk A/S. As they share a controlling shareholder, the Novozymes Group and Xellia Pharmaceuticals are also considered to be related parties as well as the Board of Directors or Executive Management of Novo Nordisk A/S.

In 2019, Novo Nordisk A/S acquired 14,025,000 B shares, worth DKK 4.9 billion, from Novo Holding A/S as part of the DKK 15.0 billion share repurchase programme. The transaction price for each transaction was calculated as the average market price in the open windows following the announcements of the financial results for the four quarters in 2019.

The Group has had the following material transactions with related parties:

DKK million	**2019**	2018	2017
Novo Holdings A/S			
Purchase of Novo Nordisk B shares	4,894	4,207	—
Sale of NNIT B shares	—	(368)	—
Dividend payment to Novo Holdings A/S	5,580	5,496	5,330
NNIT Group			
Services provided by NNIT	941	1,052	1,231
Dividend payment from NNIT	(20)	(19)	(26)
Novozymes Group			
Services provided by Novo Nordisk	(132)	(115)	(145)
Services provided by Novozymes	103	121	163
CS Solar Fund XIV			
Purchase of shares by Novo Nordisk	97	—	—
Liability for capital commitment	389	—	—
Distribution by CS Solar Fund XIV	(385)	—	—

In Novo Nordisk A/S, there were no transactions with the Board of Directors or Executive Management besides remuneration. There were no other transactions with the Board of Directors or Executive Management of NNIT A/S, Novozymes A/S, Novo Holdings A/S, the Novo Nordisk Foundation, Xellia Pharmaceuticals ApS, Unchained Labs or CS Solar Fund XIV.

For information on remuneration of the Management of Novo Nordisk, please refer to note 2.4, 'Employee costs'. There are no loans to the Board of Directors or Executive Management in 2019, nor were there any in 2018 or 2017.

There are no material unsettled balances with related parties at the end of the year.

5.4 Fee to statutory auditors

DKK million	**2019**	2018	2017
Statutory audit	26	25	24
Audit-related services	4	3	4
Tax advisory services	11	11	10
Other services	4	3	5
Total fee to statutory auditors	**45**	42	43

Fees for services other than statutory audit of the financial statements amount to DKK 19 million (DKK 17 million in 2018 and DKK 19 million in 2017). PricewaterhouseCoopers Statsautoriseret Revisionspartnerselskab (PricewaterhouseCoopers Denmark) provided other services in the amount of DKK 12 million (DKK 9 million in 2018 and DKK 8 million in 2017). Services other than statutory audit of the financial statements provided by PricewaterhouseCoopers Statsautoriseret Revisionspartnerselskab (PricewaterhouseCoopers Denmark) comprise services relating to tax compliance and transfer pricing, educational training, review of social and environmental information, other assurance opinions and agreed-upon procedures, as well as accounting advice.

5.5 Companies in the Novo Nordisk Group

Activity: • Sales and marketing • Production • Research and development • Services/investments

Company and country	Percentage of shares owned	Activity
Parent company		
Novo Nordisk A/S, Denmark		• • • •
Subsidiaries by region		
North America Operations		
Novo Nordisk Canada Inc., Canada	100	•
Novo Nordisk Inc., United States	100	•
Novo Nordisk US Bio Production, Inc., United States	100	•
Novo Nordisk US Holdings Inc., United States	100	•
Novo Nordisk Pharmaceutical Industries LP, United States	100	•
Novo Nordisk Research Center Indianapolis, Inc., United States	100	•
Novo Nordisk Research Center Seattle, Inc., United States	100	•
Novo Nordisk Pharma, Inc., United States	100	•
International Operations		
Novo Nordisk Pharma Operations A/S, Denmark	100	• •
Novo Nordisk Region AAMEO and LATAM A/S, Denmark	100	•
Region Japan & Korea		
Novo Nordisk Region Japan & Korea A/S, Denmark	100	•
Novo Nordisk Pharma Ltd., Japan	100	• •
Novo Nordisk Pharma Korea Ltd., South Korea	100	•
Region Europe		
Novo Nordisk Pharma GmbH, Austria	100	•
S.A. Novo Nordisk Pharma N.V., Belgium	100	•
Novo Nordisk Pharma d.o.o., Bosnia and Herzegovina	100	•
Novo Nordisk Pharma EAD, Bulgaria	100	•
Novo Nordisk Hrvatska d.o.o., Croatia	100	•
Novo Nordisk s.r.o., Czech Republic	100	•
Novo Nordisk Pharmatech A/S, Denmark	100	• •
Novo Nordisk Region Europe A/S, Denmark	100	•
Novo Nordisk Denmark A/S, Denmark	100	•
Novo Nordisk Farma OY, Finland	100	•
Novo Nordisk, France	100	•
Novo Nordisk Production SAS, France	100	•
Novo Nordisk Pharma GmbH, Germany	100	•
Novo Nordisk Hellas Epe., Greece	100	•
Novo Nordisk Hungária Kft., Hungary	100	•
Novo Nordisk Biopharm Limited, Ireland	100	• •
Novo Nordisk Limited, Ireland	100	•
Novo Nordisk S.P.A., Italy	100	•
UAB Novo Nordisk Pharma, Lithuania	100	•
Novo Nordisk Farma dooel, Macedonia	100	•
Novo Nordisk B.V., Netherlands	100	•
Novo Nordisk Scandinavia AS, Norway	100	•
Novo Nordisk Pharmaceutical Services Sp. z o.o., Poland	100	•
Novo Nordisk Comércio Produtos Farmacêuticos Lda., Portugal	100	•
Novo Nordisk Farma S.R.L., Romania	100	•
Novo Nordisk Pharma d.o.o. Belgrade (Serbia), Serbia	100	•
Novo Nordisk Slovakia s.r.o., Slovakia	100	•
Novo Nordisk, d.o.o., Slovenia	100	•
Novo Nordisk Pharma S.A., Spain	100	•
Novo Nordisk Scandinavia AB, Sweden	100	•
Novo Nordisk Health Care AG, Switzerland	100	• •
Novo Nordisk Pharma AG, Switzerland	100	•
Novo Nordisk Holding Limited, United Kingdom	100	•
Novo Nordisk Limited, United Kingdom	100	•
Ziylo Limited, United Kingdom	100	•

Company and country	Percentage of shares owned	Activity
Region AAMEO		
Aldaph SpA, Algeria	100	• •
Novo Nordisk Pharmaceuticals Pty. Ltd., Australia	100	•
Novo Nordisk Pharma (Private) Limited, Bangladesh	100	•
Novo Nordisk Egypt LLC, Egypt	100	•
Novo Nordisk India Private Limited, India	100	•
Novo Nordisk Service Centre (India) Pvt. Ltd., India	100	•
PT. Novo Nordisk Indonesia, Indonesia	100	•
Novo Nordisk Pars, Iran	100	•
Novo Nordisk Ltd, Israel	100	•
Novo Nordisk Kazakhstan LLP, Kazakhstan	100	•
Novo Nordisk Kenya Ltd., Kenya	100	•
Novo Nordisk Pharma SARL, Lebanon	100	•
Novo Nordisk Pharma (Malaysia) Sdn Bhd, Malaysia	100	•
Novo Nordisk Pharma Operations (Business Area) Sdn Bhd, Malaysia	100	•
Novo Nordisk Pharma SAS, Morocco	100	•
Novo Nordisk Pharmaceuticals Ltd., New Zealand	100	•
Novo Nordisk Pharma Limited, Nigeria	100	•
Novo Nordisk Pharma (Private) Limited, Pakistan	100	•
Novo Nordisk Pharmaceuticals (Philippines) Inc., Philippines	100	•
Novo Nordisk Limited Liability Company, Russia	100	•
Novo Nordisk Production Support LLC, Russia	100	•
Novo Investment Pte Limited, Singapore	100	•
Novo Nordisk Pharma (Singapore) Pte Ltd., Singapore	100	•
Novo Nordisk (Pty) Limited, South Africa	100	•
Novo Nordisk Lanka (PVT) Ltd, Sri Lanka	100	•
Novo Nordisk Pharma (Thailand) Ltd., Thailand	93	•
Novo Nordisk Tunisie SARL, Tunisia	100	•
Novo Nordisk Saglik Ürünleri Tic. Ltd. Sti., Turkey	100	•
Novo Nordisk Ukraine, LLC, Ukraine	100	•
Novo Nordisk Pharma Gulf FZ-LLC, United Arab Emirates	100	•
Region China		
Novo Nordisk (China) Pharmaceuticals Co., Ltd., China	100	• •
Beijing Novo Nordisk Pharmaceuticals Science & Technology Co., Ltd., China	100	•
Novo Nordisk Hong Kong Limited, Hong Kong	100	•
Novo Nordisk Pharma (Taiwan) Ltd., Taiwan	100	•
Region Latin America		
Novo Nordisk Pharma Argentina S.A., Argentina	100	•
Novo Nordisk Produção Farmacêutica do Brasil Ltda., Brazil	100	•
Novo Nordisk Farmacêutica do Brasil Ltda., Brazil	100	•
Novo Nordisk Farmacéutica Limitada, Chile	100	•
Novo Nordisk Colombia SAS, Colombia	100	•
Novo Nordisk Mexico S.A. de C.V., Mexico	100	•
Novo Nordisk Panama S.A., Panama	100	•
Novo Nordisk Peru S.A.C., Peru	100	•
Novo Nordisk Venezuela Casa de Representación C.A., Venezuela	100	•
Other subsidiaries and associated companies		
NNE A/S, Denmark	100	•
NNIT A/S, Denmark	18	•
Churchill Stateside Solar Fund XIV, LLC, United States	99	•

Companies without significant activities are not included in the list. NNE A/S subsidiaries are not included in the list.

Financial definitions (part of Management's review – not audited)

Financial ratios have been calculated in accordance with the guidelines from the Danish Society of Financial Analysts, and supplemented by certain key ratios for Novo Nordisk. Financial ratios are described below and in the section 'Non-IFRS financial measures'.

ADR
An American Depositary Receipt (or ADR) represents ownership of the shares of a non-US company and trades in US financial markets.

Basic earnings per share (EPS)
Net profit divided by the average number of shares outstanding.

Purchase of property, plant and equipment
Cash flow statement amount for the purchase of property, plant and equipment.

The definition of capital expenditure has been redefined in 2019. Capital expenditure is now defined as purchase of property, plant and equipment from the cash flow statement. Amounts for 2015-2018 have been restated in the 'Performance highlights'.

Diluted earnings per share
Net profit divided by average number of shares outstanding, including the dilutive effect of the outstanding restricted stock units.

Effective tax rate
Income taxes as a percentage of profit before income taxes.

Equity ratio
Total equity at year-end as a percentage of total assets at year-end.

Gross margin
Gross profit as a percentage of sales.

Net profit margin
Net profit as a percentage of sales.

Number of shares outstanding
The total number of shares, excluding the holding of treasury shares.

Operating margin
Operating profit as a percentage of sales.

Other comprehensive income (OCI)
Other comprehensive income comprises all items recognised in Equity for the year other than those related to transactions with owners of the company. Examples of items that are required to be presented in OCI are:

- Exchange rate adjustments of investments in subsidiaries.
- Remeasurements of defined benefit plans.
- Changes in fair value of financial instruments in a cash flow hedge.

Payout ratio
Total dividends for the year as a percentage of net profit.

Return on equity (ROE)
Net profit for the year as a percentage of shareholders' equity (average).

Non-IFRS financial measures

(part of Management's review - not audited)

In the Annual Report, Novo Nordisk discloses certain financial measures of the Group's financial performance, financial position and cash flows that reflect adjustments to the most directly comparable measures calculated and presented in accordance with IFRS. These non-IFRS financial measures may not be defined and calculated by other companies in the same manner, and may thus not be comparable.

The non-IFRS financial measures presented in the Annual Report are:

- Sales and operating profit in constant exchange rates
- Operating profit after tax to net operating assets (OPAT/NOA)
- Financial resources
- Free cash flow
- Cash to earnings

IFRS refers to an IFRS financial measure.

Sales and operating profit growth in constant exchange rates
'Growth in constant exchange rates' means that the effect of changes in exchange rates is excluded. It is defined as sales/operating profit for the period measured at the average exchange rates for the same period prior year compared with net sales/operating profit for the same period prior year. Price adjustments within hyperinflation countries as defined in IAS 29 'Financial reporting in hyperinflation economies' are excluded from the calculation to avoid growth in constant exchange rates being artificially inflated.

Growth in constant exchange rates is considered to be relevant information for investors in order to understand the underlying development in sales and operating profit by adjusting for the impact of currency fluctuations.

Sales in constant exchange rates

DKK million	2019	2018	2017
Net sales IFRS	122,021	111,831	111,696
Effect of exchange rate	(3,923)	5,043	2,609
Sales in constant exchange rates	**118,098**	116,874	114,305
Net sales previous year	111,831	111,696	111,780
% increase/(decrease) in constant exchange rates	5.6%	4.6%	2.3%
% increase/(decrease) in reported currencies	9.1%	0.1%	(0.1)%

Operating profit in constant exchange rates

DKK million	2019	2018	2017
Operating profit IFRS	52,483	47,248	48,967
Effect of exchange rate	(2,607)	3,098	1,770
Operating profit in constant exchange rates	**49,876**	50,346	50,737
Operating profit previous year	47,248	48,967	48,432
% increase/(decrease) in constant exchange rates	5.6%	2.8%	4.8%
% increase/(decrease) in reported currencies	11.1%	(3.5%)	1.1%

Operating profit after tax to net operating assets (OPAT/NOA)
Operating profit after tax to net operating assets is defined as 'operating profit after tax (using the effective tax rate) as a percentage of average inventories, receivables, property, plant and equipment, intangible assets and deferred tax assets less non-interest-bearing liabilities including provisions and deferred tax liabilities (where average is the sum of the above assets and liabilities at the beginning of the year and at year-end divided by two).

Management believes operating profit after tax to net operating assets is a useful measure in providing investors and Management with information regarding the Group's performance. The calculation of this financial target is a widely accepted measure of earnings efficiency in relation to total capital employed.

Solely for the purpose of calculating average net operating assets for 2019, year-end net operating assets for 2018 have been adjusted upwards by DKK 3,778 million to DKK 40,541 million, reflecting the recognition by Novo Nordisk of right-of-use assets of DKK 3,778 million as of 1 January 2019 in accordance with IFRS 16. Comparative figures for 2018 and 2017 have not been restated. Please refer to note 1.2.

The following table shows the calculation of operating profit after tax to net operating assets:

Operating profit after tax to net operating assets

DKK million	2019	2018	2017
Operating profit after tax	42,091	38,318	38,341
/ Average net operating assets	42,940	32,832	26,776
Operating profit after tax to net operating assets in %	**98.0%**	116.7%	143.2%

OPAT/NOA numerator
Reconciliation of operating profit to operating profit after tax:

DKK million	2019	2018	2017
Operating profit IFRS	52,483	47,248	48,967
Tax on operating profit (using effective tax rate)	(10,392)	(8,930)	(10,626)
Operating profit after tax	**42,091**	38,318	38,341

OPAT/NOA denominator
Reconciliation of average net operating assets: IFRS

DKK million	2019	2018	2017
Intangible assets	5,835	5,145	3,325
Property, plant and equipment	50,551	41,891	35,247
Deferred income tax assets	4,121	2,893	1,941
Other receivables and prepayments (non-current)	841	—	—
Inventories	17,641	16,336	15,373
Trade receivables	24,912	22,786	20,165
Tax receivables	806	1,013	958
Other receivables and prepayments (current)	3,434	3,090	2,428
Deferred tax liabilities	(80)	(118)	(846)
Retirement benefit obligations	(1,334)	(1,256)	(1,336)
Provisions (non-current)	(4,613)	(3,392)	(3,302)
Trade payables	(6,358)	(6,756)	(5,610)
Tax payables	(4,212)	(4,610)	(4,242)
Other liabilities	(15,085)	(14,098)	(14,446)
Provisions (current)	(31,120)	(26,161)	(20,755)
Net operating assets	**45,339**	36,763	28,900
Average net operating assets	**42,940**[1]	32,832	26,776

1. Average net operating assets for 2019 is calculated based on an adjusted net operating assets figure for 2018, which has been adjusted by the right-of-use assets of DKK 3,778 million as of 1 January 2019, following the implementation of IFRS 16. As a consequence, the net operating assets figure for 2018 has been adjusted to DKK 40,541 million for the calculation of the average net operating assets for 2019.

Financial resources
'Financial resources at the end of the year' is defined as the sum of cash and cash equivalents at the end of the year, undrawn committed credit facilities less bank overdrafts classified as liabilities arising from financing activities (part of borrowings).

Management believes that financial resources at the end of the year are an important measure of the Group's financial strength from an investor's perspective, capturing the robustness of the Group's financial position and its financial preparedness for unforeseen developments.

The following table reconciles total financial resources with cash and cash equivalents, the most directly comparable IFRS financial measure:

Financial resources

DKK million	2019	2018	2017
Cash and cash equivalents IFRS	15,411	15,629	17,158
Undrawn committed credit facilities	11,578	11,574	8,190
Borrowings (bank overdrafts)	(595)	(506)	—
Financial resources	**26,394**	26,697	25,348

Free cash flow
Novo Nordisk used to define free cash flow as 'net cash generated from operating activities' less 'net cash used in investing activities' excluding net change in marketable securities.

From 1 January 2019, Novo Nordisk defines free cash flow as 'net cash generated from operating activities', less 'net cash used in investing activities', less repayment on lease liabilities and excluding net change of marketable securities. The updated definition reflects the implementation of IFRS 16, which accordingly has a neutral effect on free cash flow.

Free cash flow is a measure of the amount of cash generated in the period which is available for the Board to allocate between Novo Nordisk's capital providers, through measures such as dividends, share repurchases and repayment of debt (excluding lease liability repayments) or for retaining in the business to fund future growth.

The following table shows a reconciliation of free cash flow with net cash generated from operating activities, the most directly comparable IFRS financial measure:

Free cash flow

DKK million	2019	2018	2017
Net cash generated from operating activities IFRS	46,782	44,616	41,168
Net cash used in investing activities IFRS	(11,509)	(12,080)	(6,571)
Net purchase of marketable securities IFRS	—	—	(2,009)
Repayment on lease liabilities IFRS	(822)	—	—
Free cash flow	**34,451**	32,536	32,588

Cash to earnings
Cash to earnings is defined as 'free cash flow as a percentage of net profit'.

Management believes that cash to earnings is an important performance metric because it measures the Group's ability to turn earnings into cash. Since Management wants this measure to capture the ability of the Group's operations to generate cash, free cash flow is used as the numerator instead of net cash flow.

The following table shows the calculation of cash to earnings:

Cash to earnings

DKK million	2019	2018	2017
Free cash flow	34,451	32,536	32,588
/ Net profit IFRS	38,951	38,628	38,130
Cash to earnings	**88.4%**	84.2%	85.5%

Statement of social performance

for the year ended 31 December

	Note	2019	2018	2017
Patients				
Patients reached with Novo Nordisk's diabetes care products (estimate in millions)	7.1	30.0	29.2	27.7
Patients reached with Novo Nordisk's diabetes care products via the Access to Insulin Commitment (estimate in millions)	7.1	2.9[1]	0.3	0.3
Donations (DKK million)	7.2	105	103	103
Animals purchased for research	7.3	49,637	65,593	67,623
Employees				
Employees (total)	8.1	43,258	43,202	42,682
Employee turnover	8.1	11.4%	11.7%	11.0%
Employee engagement		91%	91%	90%
Gender in management (ratio men:women)	8.1	60:40	60:40	60:40
Frequency of occupational accidents (number per million working hours)	8.2	2.2	2.4	2.7
Responsible business				
Relevant employees trained in business ethics	9.1	99%	99%	99%
Business ethics reviews	9.2	34	33	34
Facilitations of the Novo Nordisk Way	9.3	32	63	65
Supplier audits	9.4	236	294	246
Product recalls	9.5	4	3	6
Failed inspections	9.6	0	0	0
Company trust (scale 0–100)	9.7	78.2	84.5	82.2
Total tax contribution (DKK million)	9.8	27,527	25,825	—

1. Scope of Access to Insulin Commitment expanded in 2019 to also include middle-income countries and selected organisations providing humanitarian relief.

Notes to the consolidated social statement

Section 6
Basis of preparation

General reporting standards and principles
Novo Nordisk's annual reporting complies with the Danish Financial Statements Act. Sections 99a and b specify the requirements of the EU Directive on disclosure of non-financial and diversity information to report on management of risks related to the environment, climate, human rights, labour and social conditions, anti-corruption and gender distribution. This requirement is addressed in the Management Review. Novo Nordisk also adheres to the following internationally recognised voluntary reporting standards and principles:

- The International Integrated Reporting Framework, <IR>, developed by the International Integrated Reporting Council. The framework consists of a set of content elements and guiding principles intended to improve the quality of information available to providers of financial capital.
- The Biotechnology & Pharmaceuticals Sustainability Accounting Standard developed by the Sustainability Accounting Standards Board (SASB). The standard consists of a set of topics and accounting metrics companies can use to guide their reporting.
- The UN Guiding Principles Reporting Framework, the only comprehensive guidance for companies to report on how they respect human rights. Novo Nordisk's implementation of the Guiding Principles on Business and Human Rights is reported at novonordisk.com.
- The UK Modern Slavery Act, adopted in 2015, requires commercial organisations operating in the UK to publish an annual slavery and human trafficking statement. Novo Nordisk's annual statement is available at novonordisk.com.
- The AA1000AP(2018) and AA1000AS(2008) framework, which states that reporting must provide a complete, accurate, relevant and balanced picture of the organisation's approach to and impact on stakeholders and society.

- The UN Global Compact, a strategic policy initiative for businesses that are committed to aligning their operations and strategies with 10 universally accepted principles in the areas of human rights, labour, environment, anti-corruption and broader UN Goals. Novo Nordisk's obligation as a participant in the UN Global Compact to provide a Communication on Progress is met by inclusion of material information in the Annual Report and additional information at novonordisk.com and submitted to the UN Global Compact database at unglobalcompact.org.

Novo Nordisk applies AA1000AP(2018) as a component in creating a generally applicable approach to assessing and strengthening the credibility of the Group's public reporting of social and environmental information. Novo Nordisk has designed processes to ensure that the qualitative and quantitative information that documents the social and environmental dimensions of performance is assured, as well as the systems that underpin the data and performance. The principles outlined in AA1000AP(2018) have been applied as described below.

Inclusivity
As a pharmaceutical business with global reach, Novo Nordisk is committed to being accountable to those stakeholders who are impacted by the organisation. From the perspective of social responsibility, the key stakeholder groups are patients who rely on Novo Nordisk products, employees at Novo Nordisk and throughout the Group's value chain, business partners and local communities. Novo Nordisk maps its stakeholders and has processes in place to ensure inclusion of stakeholder concerns and expectations. In addition, Novo Nordisk continuously develops its stakeholder engagement and capacity to be a sustainable business at corporate, regional and affiliate levels. See how Novo Nordisk defines what is meant by sustainable business in 'Leading a sustainable business'.

Materiality
Key issues are identified through ongoing stakeholder engagement and trend-spotting, informed by data-driven analysis and addressed by programmes or action plans with clear and measurable targets. Long-term targets are set to guide performance in strategic areas. The issues presented in the Annual Report are deemed to have a significant impact on the Group's future business performance and may support stakeholders in their decision-making.

Responsiveness
The Annual Report reflects how the company is managing operations in ways that respond to and consider stakeholder concerns and interests. The report reaches out to a wide range of stakeholders, each with specific needs and interests. The management report is prepared with investors in mind. To these stakeholders, however, as well as to the many other groups who may seek information in the Annual Report, this is just one element of interaction and communication with the company.

Impact
Understanding, measuring and communicating the positive and negative impacts on society and the environment of Novo Nordisk's activities are important. Novo Nordisk is currently working on developing methodologies to be better able to do just that covering the entire value chain.

Applying materiality
The consolidated social statement is a result of assessing legal requirements and disclosure commitments applicable to Novo Nordisk. Whether information is tied directly or indirectly to Novo Nordisk's ability to create value over the short, medium and long term is also assessed.

When assessing whether a disclosure is material to include in the consolidated social statement, Management considers whether the matter is of such relevance and importance that it could substantively influence the assessment by providers of financial capital of Novo Nordisk's ability to create value over the short, medium and long term. See more at novonordisk.com.

The conclusion from the external assurance provider is available in the 'Independent limited assurance report'.

Principles of consolidation
The consolidated social statement and disclosures cover the Novo Nordisk Group comprising Novo Nordisk A/S and entities controlled by Novo Nordisk A/S.

Social accounting policies
The accounting policies set out below and in the notes have been applied consistently in the preparation of the consolidated social statement for all the years presented.

Changes to accounting policies and disclosures
The following disclosure changes have been made:

- 'Patients reached with diabetes care products via the Access to Insulin Commitment' is expanded in scope to reflect new initiatives, effective as of 2019. In addition to the least developed countries, the number now also covers patients reached in selected middle-income countries and through sales to selected organisations providing relief in humanitarian situations. The comparative information has not been restated.

- 'Fulfilment of action points from the Novo Nordisk Way' is replaced with 'Facilitations of the Novo Nordisk Way', to align with the new approach to assessing adherence to the Novo Nordisk Way.

- 'Company reputation' is replaced by 'Company trust' as a meaningful proxy for supportive stakeholder behaviours. The methodology has been adjusted and simplified.

Other accounting policies

Employee engagement
Employee engagement is measured on a scale of 1–5 and based on questions relating to employee engagement in the annual employee survey, OurVoice. The score is calculated as the proportion of employees who responded favourably (4 or 5) to relevant questions. For 2019, the response rate was 90% compared with 91% in 2018.

Section 7
Patients

7.1 Patients reached with Novo Nordisk's diabetes care products (estimate)

Accounting policies
The number of full-year patients reached with Novo Nordisk's diabetes care products, excluding devices and PrandiMet®, is estimated by dividing Novo Nordisk's annual sales volume by the annual usage dose per patient for each product class as defined by the World Health Organization (WHO). PrandiMet® is not included as no WHO-defined dosage exists.

The number of full-year patients reached with Novo Nordisk's diabetes care products via the Access to Insulin Commitment is estimated by dividing Novo Nordisk's annual sales volume in the least developed countries as defined by the United Nations and 29 middle-income countries as defined by the World Bank as well as selected organisations providing relief in humanitarian situations, by the annual usage dose per patient for human insulin in vials as defined by WHO. WHO has not yet assigned a daily dose for Rybelsus®. For this calculation, it is assumed that one tablet equals one patient treatment day.

The WHO-defined daily dosage has not changed since 1982, except for Victoza® which was changed in 2019, and may not reflect the recommended or prescribed daily dose accurately. Actual doses are based on individual characteristics (e.g. age and weight) and pharmacokinetic considerations. Despite this uncertainty, Novo Nordisk assesses this to be the most consistent way of reporting.

Development
The estimated number of full-year patients reached with Novo Nordisk's diabetes care products increased from 29.2 million in 2018 to 30.0 million in 2019. This 3% increase was primarily driven by sales of long-acting, premix and fast-acting insulins and GLP-1 products.

In 2019, the estimated number of patients reached via the Access to Insulin Commitment was 2.9 million, compared with 0.3 million in 2018. The significant increase is due to an expansion of the Access to Insulin Commitment to also include selected middle-income countries as well as selected organisations providing relief in humanitarian situations. Novo Nordisk sold insulin according to this commitment in 31 countries. Beyond this scheme, Novo Nordisk also sold human insulin below the ceiling price in other countries reaching an estimated additional 2.2 million patients in 2019.

7.2 Donations

Accounting policies
Donations by Novo Nordisk to the World Diabetes Foundation (WDF) and the Novo Nordisk Haemophilia Foundation (NNHF) are recognised as an expense when the donation is paid out or when an unconditional commitment to donate has been made.

Donations

DKK million	2019	2018	2017
World Diabetes Foundation (WDF)	86	85	85
Novo Nordisk Haemophilia Foundation (NNHF)	19	18	18
Total donations	105	103	103

WDF, an independent trust, supports sustainable partnerships and acts as a catalyst to help others do more. In 2019, WDF provided funding to 12 partnership projects in 11 countries. The projects focus on awareness, education and capacity building at local, regional and global levels. See 'Note 5.2' in the consolidated financial statements and worlddiabetesfoundation.org.

Novo Nordisk also provides financial support for improving global access to haemophilia care. NNHF supports programmes in developing and emerging countries. Initiatives focus on capacity building, diagnosis and registry, education and empowerment. Since 2005, NNHF has provided funding for 284 programmes in 75 countries. See nnhf.org.

7.3 Animals purchased for research

Accounting policies
The record of animals purchased for research comprises the number of animals purchased for all research undertaken by Novo Nordisk either in-house or by external contractors. The number of animals purchased is based on internal registration of purchased animals and yearly reports from external contractors.

Animals purchased

Number	2019	2018	2017
Mice, rats and other rodents	48,081	63,547	65,869
Pigs	880	1,023	835
Rabbits	349	641	493
Dogs	157	100	63
Non-human primates	168	278	241
Other vertebrates	2	4	122
Total animals purchased	49,637	65,593	67,623

The number of animals purchased for research in 2019 decreased by 24% compared with 2018 and reflects the changes in stages of the different research projects. Furthermore the reduction in the number of rodents purchased, reflects Novo Nordisk's continuous focus on reducing the number of animals per research project. 97% of the animals purchased were rodents.

Section 8
Employees

8.1 Employees

Accounting policies
The number of employees is recorded as all employees except externals, employees on unpaid leave, interns, bachelor and master thesis employees and substitutes at year-end.

Employees are attributed to geographical regions according to their primary workplace across the commercial units, research and development, production and support functions. Employees in corporate functions are included in Region Europe and employees in the global service centre in Bangalore, India are included in Region AAMEO (Africa, Asia, Middle-East and Oceania).

The rate of turnover is measured as the number of employees, excluding temporary employees, who left the Group during the financial year divided by the average number of employees, excluding temporary employees. Employees working for Group companies that have been disposed are not counted as having left the Group.

Diversity at Novo Nordisk is reported as the percentage split by gender in all managerial positions. Managerial positions are defined as all managers at Novo Nordisk (global job level including Executive Vice Presidents (EVP), Senior Vice Presidents (SVP), Corporate Vice Presidents (CVP), Vice Presidents (VP), General Managers (GM), Directors, Managers and Team Leaders).

Employees

Number	**2019**	2018	2017
North America	6,190	6,093	6,391
Region Europe	20,980	22,114	21,920
- of which in Denmark	16,747	17,461	17,510
Region AAMEO	7,622	7,127	6,767
Region China	5,263	4,636	4,482
Region Japan & Korea	1,165	1,268	1,252
Region Latin America	2,038	1,964	1,870
Total employees	**43,258**	43,202	42,682
Full-time employees	42,703	42,672	42,076
Employee turnover	**11.4%**	11.7%	11.0%
Change in employees	0%	1%	1%

The underlying growth in employees was mainly driven by Region China.

All management teams, from entry level upwards, are encouraged to focus on enhanced diversity, with the aim of ensuring a robust pipeline of talent for management positions. Among employees as a whole, the gender split was 49% women and 51% men in 2019, same as in 2018.

The table below shows the gender split among managers.

Gender in management

Ratio men:women	**2019**	2018	2017
EVP, SVP	82:18	87:13	86:14
CVP, VP, GM	66:34	66:34	67:33
Director, Manager, Team Leader	59:41	60:40	59:41
Gender in management (overall)	**60:40**	60:40	60:40

8.2 Frequency of occupational accidents

Accounting policies
The frequency of occupational accidents with absence is measured as the internally reported number of accidents using full-time employees, excluding externals, employees on unpaid leave, interns, bachelor and master thesis employees, and substitutes, per million nominal working hours. An occupational accident with absence is any work-related accident causing at least one day of absence in addition to the day of the accident.

Development
The average frequency rate of occupational accidents with absence was 2.2 per million working hours in 2019, compared with 2.4 in 2018 due to an 8% decrease in the number of accidents. In 2019, Novo Nordisk had one work-related fatality compared with none in 2018. Novo Nordisk works with a zero-injury mindset and has a long-term commitment to continuously improving safety performance.

Section 9
Responsible business

9.1 Relevant employees trained in business ethics

Accounting policies
The mandatory business ethics training is based on the Business Ethics Code of Conduct in the form of globally applicable e-learning, and related tests released annually by the Novo Nordisk Business Ethics Compliance Office. The target groups for the individual tests vary in size and are defined by Novo Nordisk. The target groups are all employees of Novo Nordisk at the end of the reporting period except employees on leave, student assistants, PhDs and postdocs. The percentage of employees completing the training is calculated as the percentage of completion of training in both the Code of Conduct and related tests, based on internal registrations.

Development
In 2019, as in 2018, 99% of relevant employees were trained in business ethics.

9.2 Business ethics reviews

Accounting policies
The number of business ethics reviews is recorded as the number of business ethics reviews performed by Group Internal Audit in subsidiaries, production sites and headquarter areas. During a business ethics review, Group Internal Audit will examine procedures and processes in place to ensure ethical behaviour. Any gaps identified in procedures, processes or behaviour are presented to Management and the Board of Directors as findings. An action plan to mitigate findings is agreed between Management and Group Internal Audit, and Group Internal Audit follows up on the implementation of the agreed actions before closing the findings.

Business ethics reviews

Number	2019	2018	2017
Business ethics reviews	**34**	33	34
Findings	87	113	130

Based on the completed business ethics reviews, it is Group Internal Audit's assessment that the business ethics compliance level, in 2019 as in 2018, is sound. Management action plans and closure of findings have progressed as planned, and there were no overdue management actions or findings at the end of the year.

9.3 Facilitations of the Novo Nordisk Way

Accounting policies
Facilitations of the Novo Nordisk Way is measured as the number of facilitations and culture coachings completed. Both are internal audit processes for assessing compliance with the Novo Nordisk Way. The assessments are based on review of documentation and feedback from stakeholders followed by an on-site visit during which randomly selected employees and management are interviewed. Identified gaps and improvement opportunities related to the Novo Nordisk Way are presented to management. The facilitators and management agree on an action plan to address those gaps and improvement opportunities.

In Q4 2018, culture coaching was introduced as a variation of the facilitation service to support the company-wide culture journey focused on 'think bigger', 'cut complexity' and 'be more agile'. Culture coaching builds on the same methodology as standard facilitations and is also anchored in the Novo Nordisk Way. In the information below, no distinction is made between a standard facilitation and culture coaching - both are referred to under the term 'facilitations'.

Development
In 2019, a total of 32 units were facilitated covering approximately 11,000 employees, of whom around 1,500 were individually interviewed. In addition, feedback on those units was collected from approximately 400 stakeholders. The reduction in the number of assignments compared to previous years is mainly a result of merging assignments to cover entire functional areas instead of facilitating many departments individually.

Overall, the 2019 process has shown a high level of adherence to the Novo Nordisk Way. The highest rated Essential continues to be the 'Patient-centred business approach', while the lowest rated Essential 'Focus on personal performance and development' continues to be an area of improvement despite efforts to raise the level of adherence.

9.4 Supplier audits

Accounting policies
The number of supplier audits concluded by Novo Nordisk's Corporate Quality function includes the number of responsible sourcing audits and quality audits conducted among suppliers.

Supplier audits

Number	2019	2018	2017
Responsible sourcing audits	27	19	28
Quality audits	209	275	218
Total supplier audits	**236**	294	246

The number of audits concluded in 2019 decreased by 20% compared with 2018. The decrease in quality audits was due to the additional qualification audits in 2018 supporting, among others, the diabetes API project in the US. There were no critical findings related to the quality audits, but one critical finding was issued in connection with a responsible sourcing audit regarding working hours. An action plan with concrete deadlines has been agreed upon and a responsible sourcing re-audit is planned for 2020 to follow up on improvements.

9.5 Product recalls

Accounting policies
The number of product recalls is recorded as the number of times Novo Nordisk has instituted a recall and includes recalls in connection with clinical trials. A recall can affect various countries.

Development
Novo Nordisk had four product recalls from the market in 2019, compared with three in 2018. As in 2018, none of the recalls were critical. Local health authorities were informed in all instances to ensure that distributors, pharmacies, doctors and patients received appropriate information.

9.6 Failed inspections

Accounting policies
The number of failed inspections is measured in relation to the US Food & Drug Administration (USFDA), the European Medicines Agency (EMA), Notified Body (TÜV SUD) and domestic authorities for strategic manufacturing sites. Failed inspections are defined as inspections where Warning Letters or EMA non-compliance letters related to GMP inspections are received, GMP/ISO certificates for strategic sites are lost, pre-approval inspections result in a Warning Letter, study conclusions are changed due to GCP/GLP inspection issues, or marketing or import authorisations are withdrawn due to inspection issues. Strategic sites are defined as the manufacturing sites in Brazil, China, Denmark, France and the US.

Development
In 2019, as in 2018, there were no failed inspections among those resolved at year-end. During the year, 66 inspections were conducted compared with 75 in 2018. At year-end, 44 inspections were passed and 22 were unresolved, as final inspection reports had not been received or the final authority acceptance was pending, which is normal. Follow-up on unresolved inspections continues in 2020.

9.7 Company trust

Accounting policies
Company trust is measured annually. The total score is measured as the mean company trust score among people with diabetes, general practitioners and diabetes specialists across key markets. Trust is measured on a scale of 0–100, with 100 being the best possible score. A score above 80 is considered excellent; a score between 70 and 80 is considered strong. Data were collected between June and September 2019.

The data are collected through annual surveys carried out by external consultancy firms.

Company trust

Scale 0-100	**2019**	2018	2017
People with diabetes	78.1	78.6	82.1
General practitioners	75.3	85.7	78.5
Diabetes specialists	81.3	89.2	86.0
Total score (average)	**78.2**	84.5	82.2

The decline in trust can best be explained by the increased scrutiny on pharma throughout 2019, in particular in regards to pricing, access and affordability of medicines, which continues to be reflected in media sentiment and social media conversations. The decline in trust is not unique to Novo Nordisk, but is a trend across the pharma sector.

9.8 Total tax contribution

Accounting policies
Novo Nordisk's total tax contribution is measured as the taxes borne or collected by Novo Nordisk, which have been paid in the respective year. Taxes borne are defined as taxes where Novo Nordisk carries the cost. Taxes collected are defined as taxes collected by Novo Nordisk on behalf of others, e.g. employee income taxes deducted from the employee salary and paid on to the government.

Tax on company income
Tax on company income primarily consists of corporate income taxes and withholding taxes on company dividends.

Employment taxes
Employment taxes primarily consist of taxes collected from the employees on behalf of the government and social security costs.

Indirect taxes
Indirect taxes consist of non-refundable VAT, net VAT collections, customs duties, environmental taxes and property taxes.

Other taxes
Other taxes consist of country-specific taxes not linked to one of the categories above, e.g. the US branded prescription drug (BPD) fee.

The total tax contribution in 2019 amounted to DKK 27,527 million split into 54% on taxes borne and 46% on taxes collected compared with 2018, where the total tax contribution was DKK 25,825 million split into 53% on taxes borne and 47% on taxes collected.

Total tax contribution 2019

DKK million	Taxes borne	Taxes collected	**Total**
Tax on company income	10,936	3,456	14,392
Employment taxes	1,642	7,996	9,638
Indirect taxes	1,364	1,246	2,610
Other taxes	887	—	887
Total	14,829	12,698	**27,527**

Total tax contribution 2018

DKK million	Taxes borne	Taxes collected	**Total**
Tax on company income	9,614	3,392	13,006
Employment taxes	1,571	7,856	9,427
Indirect taxes	1,300	957	2,257
Other taxes	1,135	—	1,135
Total	13,620	12,205	**25,825**

Statement of environmental performance

for the year ended 31 December

	Note	2019	2018	2017
Resources				
Energy consumption for operations (1,000 GJ)	11.1	2,993	3,099	—
Share of renewable power for production sites	11.1	76%	77%	79%
Water consumption for production sites (1,000 m^3)	11.2	3,149	3,101	3,276
Emissions and waste				
CO_2 emissions from operations and transportation (1,000 tons)	12.1	306	278	—
Waste from production sites (1,000 tons)	12.2	124	142	157
Responsible business				
Breaches of regulatory limit values	13.1	16	27	23

Notes to the consolidated environmental statement

Section 10
Basis of preparation

General reporting standards and principles
The consolidated environmental statement has been prepared in accordance with the same standards as those for the consolidated social statement. See 'Section 6 Basis of preparation' of the consolidated social statement for general overview. In addition, the following standards have been applied:

- Recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). TCFD aims to develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders. Novo Nordisk's actions taken in line with the TCFD recommendations are reported at novonordisk.com.

- CDP (formerly Climate Disclosure Project). CDP runs a global environmental disclosure system, which supports companies with measuring and managing risks and opportunities related to climate change, water security and deforestation. Novo Nordisk's CDP disclosures are publicly available at cdp.net

Principles of consolidation
The consolidated environmental statement covers the production sites, laboratories and offices with significant activities. CO_2 emissions related to transportation cover cars leased or owned by Novo Nordisk, business flights and suppliers distributing Novo Nordisk products.

Environmental accounting policies
The accounting policies set out below have been applied consistently in the preparation of the consolidated environmental statement for all the years presented.

Changes to accounting policies and disclosures
The following disclosure changes have been made:

- 'Energy consumption for operations' is expanded in scope from covering all facilities at production sites to also include office buildings and laboratories outside of production sites. Comparative information has been updated accordingly.

- 'CO_2 emissions from production sites and product distribution' has been taken out. This information is included in 'CO_2 emissions from operations and transportation'.

- The accounting policy for 'CO_2 emissions from business flights', included in the note for 'CO_2 emissions' has been updated to include passenger class. Comparative information has been updated accordingly.

Section 11
Resources

11.1 Energy consumption for operations and share of renewable power

Accounting policies
Energy consumption for operations is measured as consumption of power, steam, heat and fuel. The fuel is mainly from natural gas, biogas and wood. Energy consumption is based on meter readings and invoices and covers all energy types at production sites and laboratories and consumption of power at office buildings outside of production sites.

Share of renewable power used at production sites is reported according to the Greenhouse Gas (GHG) Protocol Scope 2 Guideline. It is calculated as the sum of power in each country that comes from 100% renewable sources, either sourced or self-produced.

Energy consumption for operations

1,000 GJ	**2019**	2018	2017
Production	2,458	2,502	—
Office buildings and laboratories	535	597	—
Total energy consumption	**2,993**	3,099	—

Energy consumption for operations has expanded in scope from covering all facilities at production sites to also include office buildings and laboratories outside of production sites. In 2019, energy consumption for operations decreased by 3% compared to 2018. Energy consumption for production decreased 2% due to reduced energy use to produce diabetes finished products. Energy consumption decreased by 10% from offices and laboratories due to various smaller changes across multiple sites.

In 2019, 76% of power used at production sites was sourced from renewable energy, a decrease from 77% in 2018. This is due to lower power consumption at the largest production site in Kalundborg, Denmark which uses wind power. With an agreement to have solar power in the United States, effective as of 2020, Novo Nordisk is on track to achieve 100% renewable power at all production sites in 2020.

11.2 Water consumption for production sites

Accounting policies
Water consumption is measured based on meter readings and invoices. It includes drinking water, industrial water and steam used at production sites.

Development
In 2019, water consumption at production sites increased slightly by 2% compared with 2018. This was due to an increase in water consumption for production of API for Diabetes and Obesity care.

Three facilities, in Algeria, Brazil and China, are in regions subject to high water stress or large seasonal variations, consuming 14% of the total water for global production. There have been no water shortage incidents in 2019 and overall, water consumption at these facilities increased by 2% in 2019.

Section 12
Emissions and waste

12.1 CO_2 emissions from operations and transportation

Accounting policies
CO_2 emissions from operations (production, office buildings and laboratories)
CO_2 emissions from operations cover consumption of power, fuel, heat and steam at office buildings in Denmark, global production sites and laboratories, and consumption of power in office buildings outside Denmark. Emissions are measured in metric tons, calculated according to the GHG Protocol and based on emission factors from the previous year.

CO_2 emissions from product distribution
CO_2 emissions from product distribution are calculated by external transportation suppliers as the estimated emissions from product distribution in metric tons. CO_2 emissions are calculated based on the worldwide distribution of semi-finished and finished products, raw materials and components by air, sea and road between production sites and from production sites to subsidiaries, direct customers and importing distributors. CO_2 emissions from product distribution from subsidiaries to pharmacies, hospitals and wholesalers are not included.

CO_2 emissions from business flights
CO_2 emissions from business flights are estimated based on mileage and emission factors for short, medium and long-haul flights along with passenger class obtained from travel agencies.

CO_2 emissions from company cars
CO_2 emissions from company cars cover cars leased or owned by Novo Nordisk. Emissions are calculated by multiplying emission factors by the volumes of diesel and gasoline used.

CO_2 emissions from operations and transportation

1,000 tons	**2019**	2018	2017
Production	86	86	—
Office buildings and laboratories	13	28	—
Product distribution	80	39	—
Business flights	65	63	—
Company cars	62	62	—
Total CO_2 emissions	**306**	278	—

Novo Nordisk has a long-term target of zero CO_2 emissions from operations and transportation by 2030.

In 2019, CO_2 emissions from operations and transportation increased by 10%. The increase was primarily from product distribution, due to an increase in distributed volume, along with using more air freight than sea freight as a result of supply and market driven-challenges.

CO_2 emissions from global offices and laboratories decreased by 54% in 2019. As part of the new Circular for Zero strategy, all offices and laboratories will source renewable power by 2030. In 2019, there was a significant reduction in CO_2 emissions from the R&D site in Beijing, sourcing wind power.

CO_2 emissions are expected to decrease significantly in 2020 due to various renewable energy projects, including solar power across all US operations, wind power in Europe and green steam in Denmark. Emissions from transportation are also expected to decrease due to a company car policy that encourages transition to hybrid and electric vehicles and through collaboration with EV100.

A full breakdown of Scope 1, 2 and 3 emissions from Novo Nordisk can be found at cdp.net.

12.2 Waste from production sites

Accounting policies
Waste is measured as the sum of all the waste disposed of at production sites based on weight receipts.

Waste from production sites

1,000 tons	2019	2018	2017
Recycling	97	105	122
- Organic residues[1]	89	93	116
- Other (paper, cardboard, metals etc.)	8	12	6
Energy recovery[2]	18	28	28
- Ethanol waste[3]	13	22	21
- Other (various combustible waste)	5	6	7
No energy recovery[4]	8	8	6
- Water waste	5	4	5
- Other	3	4	1
Landfill	1	1	1
Total waste	124	142	157

1. Organic residues for recycling are waste from the production of the active pharmaceutical ingredients, where the energy is recovered in biogas plants and the digested slurry is used on local farmland as fertiliser.
2. Energy recovery is waste disposed of at waste-to-energy plants and at a biogas plant.
3. Ethanol is used in purification of Diabetes care and Biopharm products. The ethanol is recovered in internal regeneration plants and re-used many times. The ethanol waste reported here is from production with no regeneration or residues from the regeneration process.
4. Water waste and other waste not suitable for other disposal methods, such as hazardous waste for incineration and various other types of waste.

In 2019, waste from production sites decreased by 13% compared with 2018. The amount of waste recycled decreased 8% in 2019 primarily due to a decrease in organic residues from the fermentation of insulin.

The amount of waste sent for energy recovery decreased by 36% primarily due to the implementation of a distillation method within API production to reuse ethanol instead of sending it for incineration with energy recovery.

In 2019, 93% of the total waste from production sites was recycled, used for biogas production or incinerated at plants where the energy is used for heat and power production.

18% of the waste is categorised as hazardous waste, a decrease from 21% in 2018. This decrease was due to a reduction in ethanol waste from the production of API for Diabetes and Obesity care.

Section 13
Responsible business

13.1 Breaches of regulatory limit values

Accounting policies
Breaches of regulatory limit values cover all breaches reported to the environmental authorities.

Development
In 2019 there were 16 breaches, a decrease from 27 breaches in 2018. The breaches were mainly related to wastewater, and all had minor impact on the environment.

Statement by the board of directors and executive management on the annual report

Today, the Board of Directors and Executive Management approved the Annual Report of Novo Nordisk A/S for the year 2019. The Board of Directors and Executive Management are jointly responsible for ensuring the integrity and quality of the report.

The Annual Report has been prepared in accordance with the International Integrated Reporting Framework.

The Consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board and in accordance with IFRS as endorsed by the EU and further requirements in the Danish Financial Statements Act.

Further, the Financial statements of the parent company and Management's review have been prepared in accordance with the Danish Financial Statements Act.

Bagsværd, 5 February 2020

In our opinion, the Consolidated financial statements and the Financial statements of the parent company give a true and fair view of the financial position at 31 December 2019, the results of the Group's and parent company's operations, and consolidated cash flows for the financial year 2019. Furthermore, in our opinion, Management's review includes a true and fair account of the development in the operations and financial circumstances, of the results for the year and of the financial position of the Group and the parent company as well as a description of the most significant risks and elements of uncertainty facing the Group and the parent company.

Novo Nordisk's Consolidated social and environmental statements have been prepared in accordance with the reporting principles of materiality, inclusivity and responsiveness of AA1000APS(2018), and social and environmental accounting policies. They give a true and fair account and a balanced and reasonable presentation of the organisation's social and environmental performance in accordance with these principles.

We recommend that the Annual Report be adopted at the Annual General Meeting.

Registered Executive Management

Lars Fruergaard Jørgensen President and CEO	Karsten Munk Knudsen CFO	Monique Carter
Camilla Sylvest	Mads Krogsgaard Thomsen	Henrik Wulff

Board of Directors

Helge Lund Chair	Jeppe Christiansen Vice chair	Brian Daniels
Laurence Debroux	Andreas Fibig	Sylvie Grégoire
Liz Hewitt	Mette Bøjer Jensen	Kasim Kutay
Anne Marie Kverneland	Martin MacKay	Thomas Rantzau
Stig Strøbæk		

Independent auditor's report

To the shareholders of Novo Nordisk A/S

Our opinion
In our opinion, the Consolidated Financial Statements give a true and fair view of the Group's financial position at 31 December 2019 and of the results of the Group's operations and cash flows for the financial year 1 January to 31 December 2019 in accordance with International Financial Reporting Standards as adopted by the EU and further requirements in the Danish Financial Statements Act.

Moreover, in our opinion, the Parent Company Financial Statements give a true and fair view of the Parent Company's financial position at 31 December 2019 and of the results of the Parent Company's operations for the financial year 1 January to 31 December 2019 in accordance with the Danish Financial Statements Act.

Our opinion is consistent with our Auditor's Long-form Report to the Audit Committee and the Board of Directors.

What we have audited
The Consolidated Financial Statements of Novo Nordisk A/S for the financial year 1 January to 31 December 2019, section 'Consolidated financial statements', comprise income statement and statement of comprehensive income, cash flow statement, balance sheet, equity statement and notes, including summary of significant accounting policies.

The Parent Company Financial Statements of Novo Nordisk A/S for the financial year 1 January to 31 December 2019, section 'Financial Statements of the Parent Company', comprise income statement, balance sheet, equity statement and notes, including summary of significant accounting policies.

Collectively referred to as the "Financial Statements".

Basis for opinion
We conducted our audit in accordance with International Standards on Auditing (ISAs) and the additional requirements applicable in Denmark. Our responsibilities under those standards and requirements are further described in the Auditor's 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 are independent of the Group in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) and the additional requirements applicable in Denmark. We have also fulfilled our other ethical responsibilities in accordance with the IESBA Code.

To the best of our knowledge and belief, prohibited non-audit services referred to in Article 5(1) of Regulation (EU) No 537/2014 were not provided.

Appointment
We were first appointed auditors of Novo Nordisk A/S in April 1982 for the financial year 1982. We have been reappointed annually by shareholder resolution for a total period of uninterrupted engagement of 38 years including the financial year 2019.

Key audit matters
Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the Financial Statements for 2019. These matters 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.

Key audit matter	How our audit addressed the key audit matter
Revenue recognition relating to rebates and discounts in the US business The Group sells to various customers in the US, which can fall under certain commercial and government mandated contracts and reimbursement arrangements, of which the most significant are Managed Care, Medicare, Medicaid and charge-backs to wholesalers. These arrangements result in deductions to gross sales in arriving at net sales and give rise to obligations for the Group to provide customers with rebates, discounts and allowances, which for unsettled amounts are recognised as an accrual. We focused on this area because rebates, discounts and allowances are complex and because establishing an appropriate accrual requires significant judgement and estimation by Management. This judgement is particularly complex in a US healthcare environment in which competitive pricing pressure and product discounting are growing trends. Refer to note 2.1 and note 3.7.	We obtained Management's calculations for accruals under applicable schemes and assessed the significance of assumptions applied by comparing them to the stated commercial policies, the terms of the applicable contracts, third party data and historical levels of paid rebates and discounts in the US business. We compared the assumptions to contracted prices, historical rebates, discounts, allowances and to current payment trends. We also considered the historical accuracy of the Group's estimates in previous years. We formed an independent assessment of the most significant elements of the accrual at 31 December 2019 using third party data and compared this expectation to the actual accrual recognised.
Litigations The pharmaceuticals industry is heavily regulated which increases inherent litigation risk and litigation and contingent liabilities may arise from product-specific and general legal proceedings, from guarantees, marketing practices, unethical behaviour or government investigations connected with the Group's activities. We focused on this area as the amounts involved are potentially material and the valuation of the provision is based on application of material judgement and estimation and therefore is associated with uncertainty. Accordingly, unexpected adverse outcomes could significantly impact the Group's reported profit and financial position. Refer to note 3.7.	We discussed the status of significant known actual and potential litigations with in-house legal counsel. We have obtained and substantively tested evidence to support the decisions and rationale for provisions held or decisions not to recognise provisions, including correspondence with external legal counsel and other counter-parties and considered Management's assessment of the probability of defending any litigation and the reliability of estimating any provisions. We assessed litigation history and other available evidence to assess the valuation and completeness of the provisions recognised by the Group. We have obtained confirmations from external legal counsel to confirm our understanding of settled and outstanding litigation and asserted claims. We evaluated significant adjustments to legal provisions recorded during the year to determine if they were indicative of management bias. We tested the completeness of the external legal counsels from whom we have asked for direct confirmation by testing legal expenses on a sample basis and comparing to internal documents.

Statement on Management's Review
Management is responsible for Management's Review, section 'Managements review'.

Our opinion on the Financial Statements does not cover Management's Review, and we do not express any form of assurance conclusion thereon.

In connection with our audit of the Financial Statements, our responsibility is to read Management's Review and, in doing so, consider whether Management's Review is materially inconsistent with the Financial Statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

Moreover, we considered whether Management's Review includes the disclosures required by the Danish Financial Statements Act.

Based on the work we have performed, in our view, Management's Review is in accordance with the Consolidated Financial Statements and the Parent Company Financial Statements and has been prepared in accordance with the requirements of the Danish Financial Statements Act. We did not identify any material misstatement in Management's Review.

Management's responsibilities for the Financial Statements
Management is responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards as adopted by the EU and further requirements in the Danish Financial Statements Act and for the preparation of parent company financial statements that give a true and fair view in accordance with the Danish Financial Statements Act, and for such internal control as Management determines 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, Management is responsible for assessing the Group's and the Parent 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 Management either intends to liquidate the Group or the Parent Company or to cease operations, or has no realistic alternative but to do so.

Auditor's 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 auditor's 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 and the additional requirements applicable in Denmark 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.

As part of an audit in accordance with ISAs and the additional requirements applicable in Denmark, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the Financial Statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Parent Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management.
- Conclude on the appropriateness of Management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Parent Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the Financial Statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group or the Parent Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the Financial Statements, including the disclosures, and whether the Financial Statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the Consolidated Financial Statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the Financial Statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Hellerup, 5 February 2020

PricewaterhouseCoopers
Statsautoriseret Revisionspartnerselskab
CVR no 3377 1231

Mogens Nørgaard Mogensen
State Authorised Public Accountant
mne21404

Mads Melgaard
State Authorised Public Accountant
mne34354

Independent limited assurance report on the consolidated social and environmental statements for 2019

To the Stakeholders of Novo Nordisk A/S
Novo Nordisk A/S engaged us to provide limited assurance on the information described below and set out in the Annual Report of Novo Nordisk for the year ended 31 December 2019.

Our conclusion
Based on the procedures we have performed and the evidence we have obtained:
A) Nothing has come to our attention that causes us to believe that the Consolidated social and environmental statements of Novo Nordisk's Annual Report for the year ended 31 December 2019 has not been prepared, in all material respects, in accordance with the Reporting Criteria.
B) Nothing has come to our attention that causes us to believe that the description of Novo Nordisk's alignment with the AA1000 Accountability Principles (AA1000AP) (2018) of Inclusivity, Materiality, Responsiveness and Impact is not fairly stated.

This conclusion is to be read in the context of what we say in the remainder of our report.

What we are assuring
The scope of our work was limited to assurance over:
A) The 'Consolidated social statement' and 'The consolidated environmental statement' and associated 'Notes', in the Annual Report of Novo Nordisk (the "Selected Information").
B) Novo Nordisk's description of alignment with the AA1000AP principles of Inclusivity, Materiality, Responsiveness and Impact for the year ended 31 December 2019 which is set out in 'Basis of preparation' in section 'Consolidated social statement' (the "Stakeholder Engagement description") of the Annual Report.

Professional standards applied and level of assurance
We performed a limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) 'Assurance Engagements other than Audits and Reviews of Historical Financial Information' and AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum (Type 2, moderate, which is the equivalent to ISAE 3000 limited assurance). A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks; consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Our independence and quality control
We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other ethical requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour. We also qualify as independent as defined by the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. Our work was carried out by an independent multidisciplinary team with experience in sustainability reporting and assurance.

Understanding reporting and measurement methodologies
The Selected Information needs to be read and understood together with the Reporting Criteria, sections 'Consolidated social statement' and 'Consolidated environmental statement', which Novo Nordisk A/S is solely responsible for selecting and applying. The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measurement techniques and can affect comparability between entities and over time.

Work performed
A) We are required to plan and perform our work in order to consider the risk of material misstatement of the Selected Information. In doing so, we:
- Conducted interviews with data owners to understand the key processes and control activities for reporting site performance data.
- Obtained an understanding of the key processes and controls for managing, recording and reporting the Selected Information.
- Performed limited substantive testing on a selective basis of the Selected Information at corporate head office to check that data had been appropriately measured, recorded, collated and reported.
- Performed analysis of data from reporting sites, selected on the basis of risk and materiality to the group; and
- Considered the presentation and disclosure of the Selected Information.

B) In respect of Novo Nordisk's description of alignment with the AA1000 Accountability Principles (AA1000AP) (2018) of Inclusivity, Materiality, Responsiveness and Impact we performed the following activities:
- Interviewed members of Novo Nordisk's Executive Management team, representatives responsible for GLP-1 portfolio and market access at global level and in the US, key employees within Corporate Global Patient Access and Corporate Sustainability to determine their understanding of their stakeholders, the mechanisms used to engage them and key issues that are of interest to each stakeholder group.
- Interviewed external stakeholders to determine their perception of Novo Nordisk's capabilities in relation to stakeholder engagement, in particular, in relation to understanding and responding to material patient concerns, needs and desires.
- Reviewed evidence on a selective basis to support the assertions made in these interviews and in the Stakeholder Engagement description.
- Confirmed the existence of systems and procedures to support Novo Nordisk's governance for responsible business conduct and stakeholder relationships. Our work focused on priorities and responsible decision-making relating to the development, launch and rollout of oral semaglutide and how this aligns with Novo Nordisk's ambition of creating a sustainable business; and
- Assessed the disclosure and presentation of the Stakeholder Engagement description.

Novo Nordisk's responsibilities
Novo Nordisk's management are responsible for:
- Designing, implementing and maintaining internal controls over information relevant to the preparation of the Selected Information that is free from material misstatement, whether due to fraud or error;
- Establishing objective Reporting Criteria for preparing the Selected Information;
- Measuring and reporting the Selected Information based on the Reporting Criteria; and
- Reporting the Stakeholder Engagement description; and
- The content of the Annual Report 2019.

Our responsibility
We are responsible for:
- Planning and performing the engagement to obtain limited assurance about whether the Selected Information and the Stakeholder Engagement description is free from material misstatement, whether due to fraud or error;
- Forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- Reporting our conclusion to the Stakeholders of Novo Nordisk A/S.

Observations and recommendations
According to AA1000AS with 2018 addendum, we are required to include observations and recommendations for improvements in relation to adherence to the AA1000APS principles. We have no significant recommendations regarding Inclusivity, Materiality, Responsiveness and Impact. We have communicated a number of minor recommendations for improvement to the management of Novo Nordisk.

Hellerup, 5 February 2020

PricewaterhouseCoopers
Statsautoriseret Revisionspartnerselskab (CVR no. 3377 1231)

Mogens Nørgaard Mogensen
State Authorised Public Accountant
mne21404

Mads Melgaard
State Authorised Public Accountant
mne34354

More information

Additional reporting

Novo Nordisk provides additional disclosure to satisfy legal requirements and stakeholder interests. Supplementary reports can be downloaded from novonordisk.com/annualreport, while additional information can be found at novonordisk.com

Materiality
Novo Nordisk leans on the International Integrated Reporting Council's definition of materiality. Information deemed material for providers of financial capital in their decision-making is included in the Annual Report, ie of such relevance and importance that it could substantively influence their assessments of Novo Nordisk's ability to create value over the short, medium and long term. See how Novo Nordisk determines materiality and material issues at novonordisk.com

Annual report
This Annual Report is Novo Nordisk's full statutory Annual Report pursuant to Section 149(1) of the Danish Financial Statements Act.

Pursuant to section 149(2), a shortened version, consisting of the Management Review and excerpts from the consolidated statements, is available in Danish. In the event of any discrepancies, the full statutory Annual Report shall prevail.

The statutory Annual Report will be presented and adopted at the annual general meeting on 26 March 2020 and will subsequently be submitted to and be available at the Danish Business Authority.

The Annual Report is prepared in accordance with the International Financial Reporting Standards and the Danish Financial Statements Act. Moreover, it meets the requirements of an integrated report, as per the International Integrated Reporting Framework.

The Annual Report also meets the requirements for Communication on Progress to the UN Global Compact, a voluntary reporting on performance towards its 10 principles on human rights, labour rights, environment and anti-corruption and additional progress reporting on corporate sustainability leadership and UN goals. The Annual Report also adheres to the UN Guiding Principles Reporting Framework on respect of human rights.

Form 20 F
The Form 20-F is filed using a standardised reporting form so that investors can evaluate the company alongside US domestic equities. It is an annual reporting requirement by the US Securities and Exchange Commission (SEC) for foreign private issuers with equity shares listed on exchanges in the United States.

Remuneration report
The remuneration report includes the total remuneration received by each member of the Board of Directors and the Executive Management of Novo Nordisk A/S from 2016 to 2018.

Corporate governance report
The corporate governance report discloses Novo Nordisk's compliance with Danish Corporate Governance Recommendations to meet the requirements of the Danish Financial Statements Act.

For more news from Novo Nordisk, visit
novonordisk.com/investors
novonordisk.com/media

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Market data on pp 20-21 are from IQVIA, November, 2018 and 2019.

Design and production: Kontrapunkt. **Digital version:** Inviso. **Photography:** Martin Nordmark, Ulrik Jantzen, Jesper Edvardsen, Jesper Westley, Per Fledelius.

Product overview

Diabetes care

New-generation insulin and combinations
Tresiba®, insulin degludec
Ryzodeg® 70/30, insulin degludec/insulin aspart
Fiasp®, fast-acting insulin aspart
Xultophy®*, insulin degludec/liraglutide

Modern insulin
Levemir®, insulin detemir
NovoRapid®**, insulin aspart
NovoRapid® PumpCart®, pre-filled insulin pump cartridge
NovoMix® 30, biphasic insulin aspart
NovoMix® 50, biphasic insulin aspart
NovoMix® 70, biphasic insulin aspart

Human insulin
Insulatard®, isophane (NPH) insulin
Actrapid®, regular human insulin
Mixtard® 30, biphasic human insulin
Mixtard® 40, biphasic human insulin
Mixtard® 50, biphasic human insulin

Glucagon-like peptide-1
Victoza®, liraglutide
Ozempic®, semaglutide
Rybelsus®, oral semaglutide (only approved in the US)

Other pre-filled insulin delivery systems
FlexTouch®, U100, U200
FlexPen®
InnoLet®

Other insulin delivery systems
PumpCart®, NovoRapid® cartridge to be used in pump
Cartridge
Vial

Insulin pens
NovoPen® 5
NovoPen® 4
NovoPen Echo®, with memory function

Needles
NovoFine® Plus
NovoFine®
NovoTwist®
NovoFine® AutoCover®

Oral antidiabetic agents
NovoNorm®, repaglinide

Glucagon
GlucaGen®, glucagon for diagnostic use
GlucaGen® Hypokit, glucagon emergency kit for severe hypoglycaemia

Obesity care

Glucagon-like peptide-1
Saxenda®, liraglutide 3 mg

Biopharm

Haemophilia
NovoSeven®, recombinant factor VIIa, also available with pre-filled syringe in an increasing number of countries
NovoEight®***, recombinant factor VIII
NovoThirteen®, recombinant factor XIII
Refixia®****, Nonacog beta pegol; N9/GP
Esperoct®[1], Turoctocog alfa pegol, N8-GP

Human growth hormone
Norditropin®, somatropin (rDNA origin)
Norditropin® FlexPro®, pre-filled multidose delivery system
Norditropin® NordiFlex®, pre-filled multi-dose delivery system
Norditropin® NordiLet®, pre-filled multi-dose delivery system
Norditropin® SimpleXx®, durable multi-dose delivery system
NordiPen®, prefilled multi-dose delivery system
PenMate®, automatic needle inserter (for NordiPen® and NordiFlex®)
Macrilen™, Macimorelin; growth hormone secretagogue receptor agonist

Hormone replacement therapy
Vagifem®, estradiol hemihydrate
Activelle®, estradiol/norethisterone acetate
Kliogest®, estradiol/norethisterone acetate
Novofem®, estradiol/norethisterone acetate
Trisequens®, estradiol/norethisterone acetate
Estrofem®, estradiol

* in the US approved under the brand name Xultophy® 100/3.6
** in the US called NovoLog®
*** in the US spelt Novoeight®
**** in the US approved under the name of REBINYN®
[1]approved in the US and received positive opinion in EU

The product overview on this page makes reference to our 2019 product offering. The names used are European product trade names with accompanying generic names. Trade and generic names may differ in other markets.

Financial calendar 2020

5 February 2020
Financial statement for 2019 and Annual Report 2019

26 March 2020
Annual General meeting 2019

27 March 2020
Ex-dividend

30 March 2020
Record date

31 March 2020
Payment, B shares

7 April 2020
Payment, ADRs

6 May 2020
Financial statement for the first three months of 2020

6 August 2020
Financial statement for the first six months of 2020

14 August 2020
Ex-dividend

17 August 2020
Record date

18 August 2020
Payment, B shares

25 August 2020
Payment, ADRs

30 October 2020
Financial statement for the first nine months of 2020

Financial calendar 2021

3 February 2021
Financial statement for 2020 and Annual Report 2020

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Investor Service
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Shareholders' enquiries concerning dividend payments and shareholder accounts should be addressed to: shareholder@novonordisk.com

ADR holders' enquiries concerning dividend payments, transfer of ADR certificates, consolidation of accounts and tracking of ADRs should be addressed to:

JPMorgan Chase Bank, N.A

Toll free number: Phone: 1 800 990 1135
Hearing impaired: Phone: 1 866 700 1652
Outside the U.S.: Phone: +1 651 453 2128

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St. Paul, MN 55164-0504
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StockTransfer@equiniti.com

Financial Statements of the Parent Company 2019

The following pages comprise the financial statements of the parent company, the legal entity Novo Nordisk A/S. Apart from ownership of the subsidiaries in the Novo Nordisk Group, activity within the parent company mainly comprises sales, research and development, production, corporate activities and support functions.

Income Statement

For the year ended 31 December

DKK million	Note	2019	2018
Net sales	2	93,440	84,752
Cost of goods sold	3	17,940	16,457
Gross profit		75,500	68,295
Sales and distribution costs	3	23,619	22,215
Research and development costs	3	12,858	13,308
Administrative costs	3	1,837	1,746
Other operating income, net		2,204	2,214
Operating profit		39,390	33,240
Profit in subsidiaries, net of tax	8	10,497	11,485
Financial income	4	485	1,970
Financial expenses	4	3,707	1,585
Profit before income taxes		46,665	45,110
Income taxes		7,413	6,580
Net profit for the year		**39,252**	38,530

Balance sheet

At 31 December

DKK million	Note	2019	2018
Assets			
Intangible assets	6	3,428	2,799
Property, plant and equipment	7	24,724	24,141
Financial assets	8	33,876	28,469
Deferred income tax assets	5	95	—
Other receivables and prepayments		239	—
Total non-current assets		**62,362**	55,409
Raw materials		2,357	1,951
Work in progress		9,761	9,191
Finished goods		2,590	1,922
Inventories		14,708	13,064
Trade receivables		1,687	1,847
Amounts owed by affiliated companies		14,302	11,544
Tax receivables		295	884
Other receivables and prepayments		1,340	1,001
Receivables		17,624	15,276
Derivative financial instruments	9	188	204
Cash at bank		14,067	14,472
Total current assets		**46,587**	43,016
Total assets		**108,949**	98,425
Equity and liabilities			
Share capital		480	490
Net revaluation reserve according to the equity method		15,340	11,116
Development costs reserve		811	1,083
Retained earnings		40,801	38,816
Total equity		**57,432**	51,505
Borrowings	10	715	—
Deferred income tax liabilities	5	—	137
Other provisions	11	995	739
Total non-current liabilities		1,710	876
Borrowings	10	165	2
Derivative financial instruments	9	734	2,024
Trade payables		2,673	2,368
Amounts owed to affiliated companies		40,754	36,108
Tax payables		74	33
Other liabilities	11	5,407	5,509
Total current liabilities		**49,807**	46,044
Total liabilities		**51,517**	46,920
Total equity and liabilities		**108,949**	98,425

Equity statement

DKK million	Share capital	Net revaluation reserve	Develop-ment costs reserve	Retained earnings	**2019**	2018
Balance at the beginning of the year	490	11,116	1,083	38,816	51,505	49,284
Appropriated from Net profit for the year				15,377	15,377	22,452
Total dividend for the year				19,651	19,651	19,547
Appropriated from Net profit for the year to net revaluation reserve		4,224			4,224	(3,469)
Effect of cash flow hedges transferred to the income statement				1,506	1,506	(1,820)
Fair value adjustments of cash flow hedges for the year				(323)	(323)	(1,506)
Interim dividends paid during the year				(7,100)	(7,100)	(7,238)
Dividends paid for prior year				(12,309)	(12,309)	(11,810)
Share-based payments (note 3)				148	148	199
Tax credit related to restricted stock units				16	16	(2)
Purchase of treasury shares				(15,334)	(15,334)	(15,567)
Reduction of the B share capital	(10)			10	—	—
Exchange rate adjustments of investments in subsidiaries				226	226	491
Development costs			(272)	272	—	—
Other adjustments				(155)	(155)	944
Balance at the end of the year	480	15,340	811	40,801	**57,432**	51,505
Proposed appropriation of net profit:						
Interim dividend for the year					7,100	7,238
Final dividend for the year					12,551	12,309
Appropriated to Net revaluation reserve					4,224	(3,469)
Transferred to Retained earnings					15,377	22,452
Distribution of net profit					**39,252**	38,530

Please refer to note 4.1 in the consolidated financial statements regarding average number of shares, treasury shares and total number of A and B shares in Novo Nordisk A/S.

Notes

1 Accounting policies
The financial statements of the parent company have been prepared in accordance with the Danish Financial Statements Act (Class D) and other accounting regulations for companies listed on Nasdaq Copenhagen.

The accounting policies for the financial statements of the parent company are unchanged from the previous financial year except for a change of accounting policy for leases and changed presentation of the balance sheet. The accounting policies are the same as for the consolidated financial statements with the adjustments described below. For a description of the accounting policies of the group, please refer to the consolidated financial statements.

No separate statement of cash flows has been prepared for the parent company; please refer to the statement of cash flows for the group.

Change of presentation of balance sheet
The parent company has changed the presentation of the balance sheet to align to the balance sheet for the Group. Deferred tax asset is now being presented as a non-current asset and provisions are now being presented as non-current and current liabilities. The change had no impact on recognised amounts.

Change of accounting policy for leasing
As of 1 January 2019, the parent company has changed accounting policy for leases from using IAS 17 for interpretation of the Danish Financial Statements Act to using IFRS 16. The parent company implemented IFRS 15 as interpretation for revenue in the financial statements for 2018.

The change has been applied by using the modified retrospective approach. Under this method, the cumulative effect of initially applying the standard is recognised at 1 January 2019. Rights-of-use assets and lease liabilities have been recognised for those leases previously classified as operating leases, except for short-term leases and leases of low value assets. The rights-of-use assets have been recognised based on the amount equal to the lease liabilities, adjusted for any related prepaid and accrued lease payments previously recognised. Lease liabilities are recognised based on the present value of the remaining lease payments, discounted using the incremental borrowing rate as of 1 January 2019. The comparative information has not been restated. The weighted average incremental borrowing rate applied on transition to IFRS 16 for parent company was 1.20%.

For a description of the transition method used and for a description of the new accounting policies please refer to note 1.2 in the consolidated financial statements.

The impact of the change in accounting policy is recognition of additional DKK 1,010 million of property, plant and equipment and DKK 1,010 million of borrowings. The change in policy has had an insignificant impact on the income statement for 2019.

Reconciliation of lease liabilities pursuant to change of accounting policy

DKK million	
Operating leases commitments as disclosed in the parent company's 2018 financial statement	**1,296**
Recognition exemptions:	
Short-term leases	(23)
Leases of low value assets	(24)
Variable lease payments	(187)
Other	(7)
Lease liability on transition (undiscounted)	**1,055**
Discounted using the parent company's incremental borrowing rate at 1 January 2019	**1.20%**
Lease liability recognised on transition	**1,010**

Supplementary accounting policies for the parent company

Financial assets
In the financial statements of the parent company, investments in subsidiaries and associated companies are recorded under the equity method, using the respective share of the net asset values in subsidiaries and associated companies. Net profit of subsidiaries and associated company less unrealised intra-group profits is recorded in the income statement of the parent companies.

To the extent that net profit exceeds declared dividends from such companies, net revaluation of investments in subsidiaries and associated companies are transferred to Net revaluation reserve under equity according to the equity method. Profits in subsidiaries and associated companies are disclosed as profit after tax.

Tax
For Danish tax purposes, the parent company is assessed jointly with its Danish subsidiaries. The Danish jointly taxed companies are included in a Danish on-account tax payment scheme for Danish corporate income tax. All current taxes under the scheme are recorded in the individual companies. Novo Nordisk A/S and its Danish subsidiaries are included in the joint taxation of the parent company, Novo Holdings A/S.

Uncertain tax positions are presented individually as part of Tax receivables/Tax payables.

Novo Nordisk recognises deferred income tax assets, if it is probable that sufficient taxable income will be available in the future, against which the temporary differences can be utilised.

2 Sales

DKK million	**2019**	2018
Sales by business segment		
Diabetes and Obesity care	93,192	84,573
Biopharm	248	179
Total sales	**93,440**	84,752
Sales by geographical segment		
North America Operations	50,326	47,942
Region Europe	16,615	14,445
Region China	10,326	8,962
Region AAMEO	9,808	8,490
Region Latin America	3,030	2,339
Region Japan & Korea	3,335	2,574
Total sales	**93,440**	84,752

Sales are attributed to geographical segment based on location of the customer. For definitions of segments, please refer to note 2.2 in the consolidated financial statements.

3 Employee costs

DKK million	**2019**	2018
Wages and salaries	10,668	11,423
Share-based payment costs	148	199
Pensions	1,009	1,028
Other social security contributions	197	212
Other employee costs	393	346
Total employee costs in the income statement	**12,415**	13,208
Average number of full-time employees	**15,550**	16,244
Year-end number of full-time employees	**15,442**	16,094

For information regarding remuneration to the Board of Directors and Executive Management, please refer to note 2.4 in the consolidated financial statements.

4 Financial income and financial expenses

DKK million	2019	2018
Interest income relating to subsidiaries	432	297
Income from associated company	36	40
Financial gain from forward contracts (net)	—	1,300
Other financial income	17	333
Total financial income	**485**	1,970
Interest expenses relating to subsidiaries	588	483
Foreign exchange loss (net)	426	1,018
Financial loss from forward contracts (net)	2,470	—
Other financial expenses	223	84
Total financial expenses	**3,707**	1,585

5 Deferred income tax assets/(liabilities)

DKK million	2019	2018
Net deferred tax asset/(liability) at the beginning of the year	(137)	(856)
Income/(charge) to the income statement	460	30
Income/(charge) to Equity	(228)	689
Net deferred tax asset/(liability) at the end of the year	**95**	(137)

The Danish corporate tax rate was 22% in 2019 (22.0% in 2018).

6 Intangible assets

DKK million	2019	2018
Cost at the beginning of the year	6,032	4,765
Additions during the year	1,190	1,267
Disposals during the year	(12)	—
Cost at the end of the year	7,210	6,032
Amortisation at the beginning of the year	3,233	2,319
Amortisation during the year	271	914
Impairment losses for the year	290	—
Amortisation and impairment losses reversed on disposals during the year	(12)	—
Amortisation at the end of the year	3,782	3,233
Carrying amount at the end of the year	**3,428**	2,799

Intangible assets primarily relate to patents and licences, internally developed software and costs related to major IT projects.

7 Property, plant and equipment

DKK million	Land and buildings	Plant and machinery	Other equipment	Assets in course of construction	2019	2018
Cost at the beginning of the year	19,140	19,063	3,230	5,859	47,292	46,099
Change of accounting policy for leases	965	—	45	—	1,010	—
Additions during the year	176	361	140	1,344	2,021	2,791
Disposals during the year	(146)	(436)	(175)	(21)	(778)	(1,598)
Transfer from/(to) other items	622	1,828	492	(2,942)	—	—
Cost at the end of the year	20,757	20,816	3,732	4,240	49,545	47,292
Depreciation and impairment losses at the beginning of the year	7,365	13,834	1,952	—	23,151	22,685
Depreciation for the year	1,077	899	307	—	2,283	1,881
Impairment losses for the year	55	70	18	21	164	112
Depreciation reversed on disposals during the year	(145)	(436)	(175)	(21)	(777)	(1,527)
Depreciation and impairment losses at the end of the year	8,352	14,367	2,102	—	24,821	23,151
Carrying amount at the end of the year	12,405	6,449	1,630	4,240	**24,724**	24,141
Of which related to leased property, plant and equipment	826	—	51	—	**877**	—

Leased property, plant and equipment primary relates to lease of office buildings, warehouses, laboratories and vehicles.

8 Financial assets

DKK million	Investments in subsidiaries	Amounts owed by affiliated companies	Investment in associated company	Other securities and investments	2019	2018
Cost at the beginning of the year	8,933	7,432	105	807	17,277	14,405
Investments during the year	3,744	1,274		391	5,409	3,545
Divestments during the year	(3,744)	(449)			(4,193)	(673)
Cost at the end of the year	8,933	8,257	105	1,198	18,493	17,277
Value adjustments at the beginning of the year	28,784	115	92	(39)	28,952	30,591
Profit/(loss) before tax	16,514				16,514	15,329
Share of result after tax in associated company			36		36	40
Income taxes on profit for the year	(2,226)				(2,226)	(2,323)
Market value adjustment				(187)	(187)	129
Dividends received	(6,300)		(20)		(6,320)	(15,694)
Divestments during the year					—	44
Effect of exchange rate adjustment	296	152		2	450	698
Other adjustments	(215)				(215)	138
Transfer between unrealised internal profit and value adjustment	(8,201)				(8,201)	—
Value adjustments at the end of the year	28,652	267	108	(224)	28,803	28,952
Unrealised internal profit at the beginning of the year	(17,760)				(17,760)	(16,382)
Unrealised internal profit movements in the year	(3,791)				(3,791)	(1,521)
Effect of exchange rate adjustment	(70)				(70)	143
Transfer between unrealised internal profit and value adjustment	8,201				8,201	—
Unrealised internal profit at the end of the year	(13,420)	—	—	—	(13,420)	(17,760)
Carrying amount at the end of the year	24,165	8,524	213	974	**33,876**	28,469

Carrying amount of investments in subsidiaries does not include capitalised goodwill at the end of the year. For a list of companies in the Novo Nordisk group, please refer to note 5.5 to the consolidated financial statements.

9 Derivatives

For information on derivative financial instruments, please refer to note 4.4 in the consolidated financial statements.

10 Borrowings

DKK million	2019	2018
Within 1 year	165	2
1-5 years	523	—
More than 5 years	192	—
Total borrowings	**880**	2

Borrowings at end of 2019 are related to lease liabilities.

11 Other provisions

Provisions for pending litigations are recognised as Other provisions. Furthermore, as part of normal business Novo Nordisk issues credit notes for expired goods. Consequently, a provision for future returns is made, based on historical product return statistics.

For information on pending litigations, please refer to note 3.7 in the consolidated financial statements.

12 Related party transactions

For information on transactions with related parties, please refer to note 5.3 in the consolidated financial statements.

Transactions with CS Solar Fund XIV disclosed in note 5.3 in the consolidated financial statements are not related to the parent company. The parent company's share of services provided by NNIT Group amounts to DKK 758 million.

Novo Nordisk A/S is included in the consolidated financial statements of Novo Nordisk Foundation.

13 Fee to statutory auditors

DKK million	2019	2018
Statutory audit	8	8
Audit-related services	3	3
Tax advisory services	6	4
Other services	3	2
Total fee to statutory auditors	**20**	17

14 Commitments and contingencies

DKK million	2019	2018
Commitments		
Leases[1]	175	1,296
Potential milestone payments[2]	4,464	3,004
Guarantees given for subsidiaries	10,011	9,898
Other guarantees	130	171

1. Leases for 2019 predominantly relate to estimated variable property taxes and low value assets. Leases for 2018 reflect operating lease commitment.
2. Potential milestone payments are associated with uncertainty as they are linked to successful achievements in research activities; please refer to note 5.2 in the consolidated financial statements.

Novo Nordisk A/S and its Danish subsidiaries are jointly taxed with the Danish companies in Novo Holdings A/S. The joint taxation also covers withholding taxes in the form of dividend tax, royalty tax and interest tax. The Danish companies are jointly and severally liable for the joint taxation. Any subsequent adjustments to income taxes and withholding taxes may lead to a larger liability. The tax for the individual companies is allocated in full on the basis of the expected taxable income.

For information on pending litigation and other contingencies, please refer to notes 3.7 and 5.2 in the consolidated financial statements.