Novo Nordisk Annual Report 2018

Partnering for innovation

Committed to making obesity a healthcare priority

The future in a tablet

Contents

Management review

29.2

million patients reached with Novo Nordisk diabetes products

111,831

DKK million in net sales

All references can be found on p 110.

The Management review, as defined by the Danish Financial Statements Act, is found on pp 1–57.

This Annual Report is Novo Nordisk's full statutory Annual Report. See further details on p 110.

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

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LETTER FROM THE CHAIR

A year of accelerated change

For Novo Nordisk, 2018 has been a year of accelerated change. With the full support of the Board of Directors, the Executive Management team has redefined the company's approach to research and development, reprioritised resources towards key growth drivers and continued to streamline and simplify across the organisation – while delivering strong pipeline progress and successfully launching innovative products.

Although this transition has just begun, we are already seeing the positive impact it is having on our business. Under Lars Fruergaard Jørgensen's capable leadership, we are building a strong platform for sustainable growth, and the Board of Directors has every faith that he and his team have the vision, capabilities and execution power to deliver long-term success for Novo Nordisk.

Many of the challenges the company is confronted by are not new, nor are there any quick fixes. But with the changes Executive Management has made across the organisation in 2018 and a disciplined focus on prioritising for growth, we are well on our way towards creating a simpler, more dynamic organisation – one that is better equipped to deal with the volatile, rapidly changing business environment in which we are now operating.

A clear example is the way that Novo Nordisk has redefined its approach to research and development and is executing on the new strategy that was set out last year. The core capabilities and self-reliance that have provided the foundation for past successes are no longer enough to take us where we want to go. Success in the long term can only be realised through diversification of the product portfolio via entry into other therapy areas with significant unmet patient needs. The new strategy is to complement in-house innovation with greater emphasis on external collaboration and breakthrough innovation with the objective of delivering greater long-term value for patients and the business.

Novo Nordisk's purpose is more relevant than ever. Driving change to defeat diabetes and other serious chronic diseases is imperative if we are to achieve more sustainable development. The rising prevalence of these diseases is an unintended consequence of socioeconomic growth, and turning that tide will take more than providing medicines. I am encouraged and excited to see how Novo Nordisk stands up as a leader that understands and is prepared to assume a broader role in shaping a society in which people everywhere can thrive. This is what motivated me to join the Novo Nordisk Board of Directors and remains a key driver for my engagement.

It was an honour to be elected Chair of the Board of Directors at the 2018 Annual General Meeting. I have huge respect for the responsibilities that come with the role, and I am doing my utmost to repay that trust by providing stable stewardship of the company. I have spent most of my professional life in the energy sector and see many parallels with the pharmaceutical industry. Both are complex, highly regulated and fiercely competitive. But more importantly they play a vital role in society and the decisions they make have a huge impact for generations to come. In my role as Chair I am seeking to apply all the relevant insights and expertise I have gained. Most importantly, I strive to always uphold the interests of the patients we serve and the shareholders who are invested in the company, and I can say with absolute certainty that this is a goal shared by the employees of Novo Nordisk.

In conclusion, based on Novo Nordisk's solid financial performance over the course of 2018, at the Annual General Meeting in March 2019 the Board will propose a total dividend of 8.15 Danish kroner per share. As in previous years, the Board has decided to initiate a new share repurchase programme of up to 15 billion Danish kroner, which will commence in February 2019.

On behalf of the Board, all that remains for me to say is thank you: to Novo Nordisk's leadership team for leading the organisation through a year of accelerated change; to employees for their hard work and commitment in uncertain times; and to you, our shareholders, for your support throughout 2018.

Helge Lund
Chair of the Board of Directors

LETTER FROM THE CEO

Finding strength through change

For everyone at Novo Nordisk, 2018 was a year of change – and significant progress. We delivered on our targets for sales and operating profit. We successfully launched Ozempic®, our new once-weekly GLP-1 for people with type 2 diabetes and took crucial steps towards the regulatory submission of oral semaglutide. But we also had to say goodbye to many good colleagues.

We have a clear ambition to be a sustainable business, and our actions in 2018 have significantly strengthened our platform for sustainable growth. We are simplifying our way of working to become more robust and agile in the face of new challenges. And we continue to create long-term value for patients and shareholders by driving innovation in-house and, notably, in collaboration with new external partners. Throughout, we have done all this in a financially, environmentally and socially responsible way, reaffirming our commitment to the Triple Bottom Line principle that drives our approach to business.

Let us look at some examples. Within diabetes care, we significantly strengthened our position in the GLP-1 segment with the successful launch of Ozempic®, and we are preparing to submit oral semaglutide for regulatory approval in 2019. We obtained a label update for Tresiba® to reflect its superior safety profile with regard to severe hypoglycaemia and risks of cardiovascular events. We are strengthening our leadership position in obesity care, building on the success of Saxenda®. In the Biopharm business, our new strategy has set us on course to return to growth. In research and development, we are stepping up external collaboration and digitalisation. Finally, we are investing in production capacity at an unprecedented level to help prepare for an exciting future. The expansion of our manufacturing facility in Clayton, North Carolina, is scheduled to deliver products from 2020. It is the largest single investment in the history of Novo Nordisk.

To ensure that we carry this momentum through 2019 and beyond, we have implemented a number of organisational changes throughout 2018 that have enhanced our ability to adapt and succeed in a rapidly-changing business environment. Regrettably, we have had to reduce the workforce by around 1,300 employees globally, but it is important to understand that this has not been an exercise in cutting costs. Rather, we have recognised the need to increase the agility of our business by freeing up resources for reallocation towards our future key growth drivers, and we can see that this is already having a positive impact on our performance.

Of course, it is not just what we do, but also how we do it that makes Novo Nordisk a special company. The Novo Nordisk Way is the foundation for our strong workplace culture, which helps us steer through times of change. We encourage open and honest dialogue, and employees are mandated to take decisive action to address the increasingly complex issues we face – all while holding ourselves accountable to the highest standards of compliance and integrity in everything we do.

Our purpose is clear to everyone in the organisation: driving change to defeat diabetes and other serious chronic diseases. That is what motivates us as we go to work every day. This sense of purpose extends to our commitment to be a responsible corporate citizen, playing our part in achieving the Sustainable Development Goals. Let me just mention a few examples from the past year: Novo Nordisk has partnered with the Red Cross to improve care for people with diabetes and other serious non-communicable diseases (NCDs) who are affected by humanitarian crises. We have become a founding partner of Defeat NCDs – a public-private-people partnership backed by the United Nations which seeks to improve access to treatment for diabetes and other NCDs in low- and middle-income countries. Furthermore, in light of the environmental challenges the world faces, we have embarked on a new environmental strategy, with the ambition of having zero environmental impact. And underpinning all of that, we strengthened our commitment to respect human rights, incorporating it into our Business Ethics Code of Conduct.

In 2019, we will continue to focus on implementing the strategies we have developed and started executing on, and we will continue to drive simplicity, agility and sustainability across the organisation. We work hard and make every effort to make our innovative products accessible to patients in all parts of the world. We expect to improve our market position by growing market shares, so that we can accelerate growth.

“We have a clear ambition to be a sustainable business, and our actions in 2018 have significantly strengthened our platform for sustainable growth.”

In my role as CEO, I have made it clear that we aim to lead in all disease areas in which we are active. Furthermore, I want Novo Nordisk to be recognised by our employees, the patients we serve, our shareholders and other stakeholders as an outstanding company – both for what we do, and how we do it. I believe we are making progress on all counts, but the job is not yet done.

I want to close by thanking everyone in Novo Nordisk for their dedication in the pursuit of our purpose. I also want to express my appreciation to our Board of Directors for their confidence in our leadership team and for their strong stewardship. And on behalf of everyone at Novo Nordisk, I thank you – our shareholders – for your continued support.

Lars Fruergaard Jørgensen
President & chief executive officer

Novo Nordisk at a glance

Driving change to defeat diabetes and other serious chronic diseases

43,202
employees

80
countries

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.

Strategic focus areas

Total net sales* DKK 111,831 million

DKK 90,035 million
Diabetes (81%)

DKK 9,576 million
Haemophilia (9%)

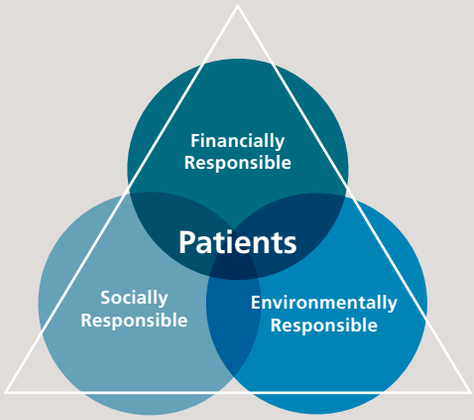
DKK 6,834 million
Growth disorders (6%)

DKK 3,869 million
Obesity (3%)

* Including other biopharmaceuticals (1%). See sales and growth analyses by business segment and by geographical area on pp 67–69.

Business approach

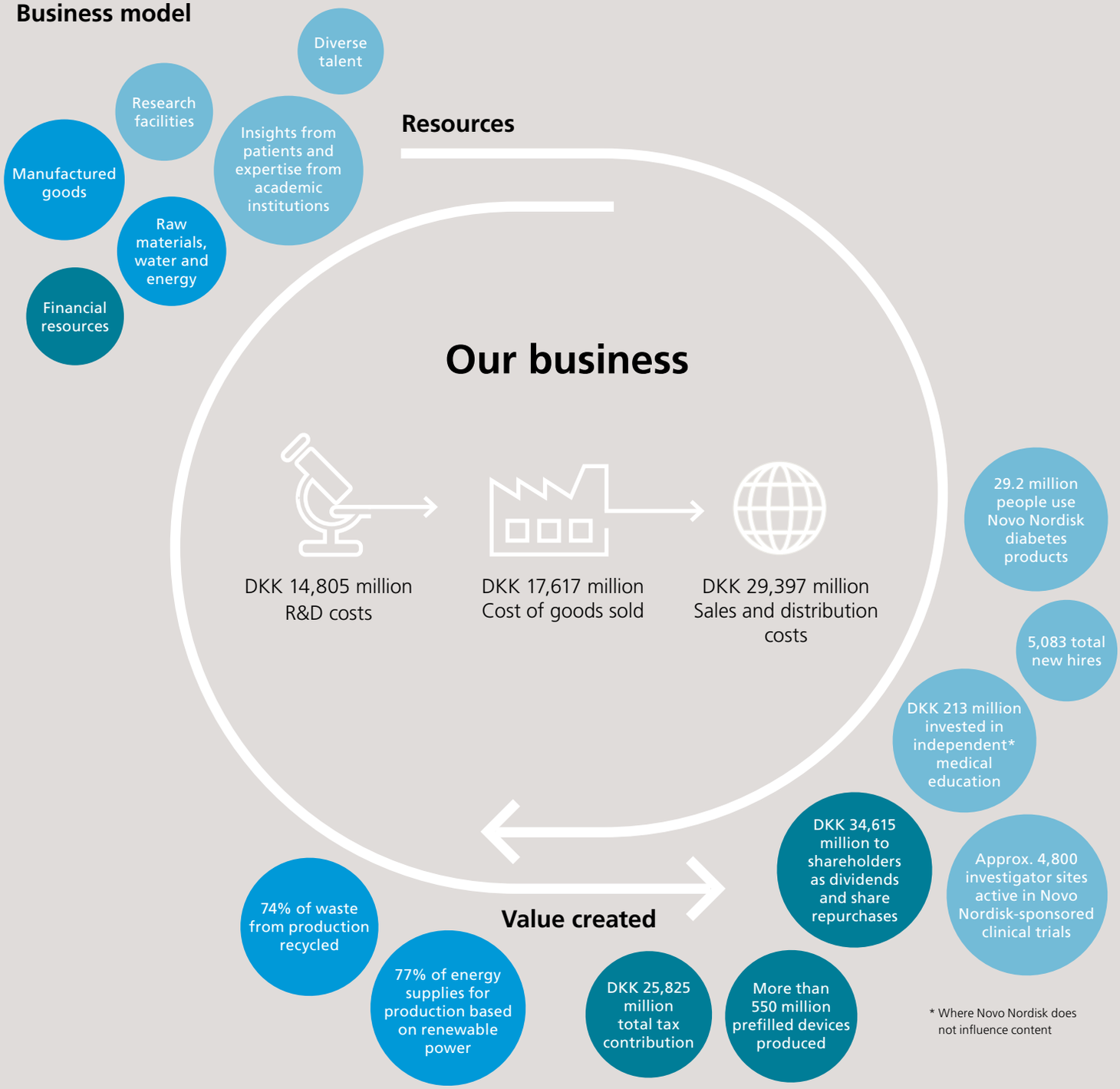
The Triple Bottom Line principle is anchored in the company's Articles of Association and the Novo Nordisk Way as the way we do business. It is applied to ensure that business decisions balance financial, social and environmental considerations, always keeping in mind the best interests of the patients we serve.



Novo Nordisk's ambition is to be a sustainable business. By this we mean:

- creating long-term value for patients, employees, partners and shareholders by developing innovative and competitive solutions to patients' unmet needs
- doing business in a financially, environmentally and socially responsible way
- anticipating, adapting to and creating new business opportunities from changes in our business environment.

Business model



* Where Novo Nordisk does not influence content

Leading the Novo Nordisk Way

The Novo Nordisk Way underpins the company's vision, strategy and actions. It describes 'who we are; how we work; and what we want to achieve', setting a clear direction for the company and all employees.

It all started with a love story between August Krogh, a Danish Nobel laureate in physiology, and his wife Marie, a medical doctor.

When the couple discovered that Marie had diabetes, they began a journey to seek a treatment for the disease, and returned from a trip to the US and Canada in 1922 with the rights to manufacture and sell insulin in Scandinavia.

August Krogh became the co-founder of Nordisk Insulinlaboratorium the following year, and the story of Novo Nordisk began. Ever since, the people leading the company have displayed the same thirst for discovery as the Kroghs, and remained true to their sense of responsibility – to patients, employees, communities and investors alike.

The ambitions and values of the founders remain vivid in the company that is Novo Nordisk today. They are expressed in the Novo Nordisk Way, which is the foundation for the company culture – 'how we do business'.

"The Novo Nordisk Way is more than a corporate credo. It's the 'why' and the 'how' of our business," explains Lars Fruergaard Jørgensen, president and chief executive officer. "It underpins our strategy and ambitions, and it spells out exactly what's expected of all employees, wherever they work and whatever they are working on."

It all begins with the commitment to put patients at the centre of every decision made. And an obligation to be accountable for financial, social and environmental performance – this is how Novo Nordisk's 'Triple Bottom Line' principle is put into practice.

"The decisions we make and the actions we take invariably impact people, communities and the environment in different ways," says Lars Fruergaard Jørgensen. "To conduct our business in a responsible way, we take all these dimensions into consideration, so we can strike the right balance, always keeping in mind what is best for the long term. This is what our Triple Bottom Line approach is all about."

Through thick and thin

For Lars Fruergaard Jørgensen, the Novo Nordisk Way and the Triple Bottom Line provide a solid foundation for the company's success. These are based on foundational values that the company has stuck to through thick and thin, ensuring balance and stability during years of rapid growth, and strength and purpose through more challenging times.

And while Novo Nordisk is operating in an increasingly competitive and cost-constrained business environment, there is no doubt in Lars Fruergaard Jørgensen's mind that the Novo Nordisk Way is the key to a successful and sustainable future for the company.

"This year, we have continued to focus particularly on setting bold ambitions and striving for agility and simplicity in everything we do," he explains. "With the fast growth the company has experienced over the past 15 years, our processes and organisational set-up have naturally become more complex. In an increasingly competitive environment, we must be able to act quickly and decisively. This requires us to simplify the way we operate, and empower leaders at all levels of the organisation to make the decisions that are necessary in order for their area of the business to achieve its goals."

By zooming in on simplicity and agility, Novo Nordisk aims to ensure that the company will continue to run a successful and sustainable business bringing innovative treatments to those patients who need it.

A transformational journey

This focus is already effecting real change across Novo Nordisk – nowhere more so than the backbone of the company, Research & Development (R&D), where a recent restructure and reprioritisation of resources has set the organisation on an accelerated path towards delivery of its strategic priorities (see p 8).

"The bold changes we are implementing in R&D are standout examples of what we are doing to think bigger, reduce complexity and increase agility," says Lars Fruergaard Jørgensen. "They are clear manifestations of the new direction the company is taking – and the questions we need to ask ourselves as we undergo this transformation. How can we create greater efficiency through digitalisation? What processes can be replaced by new technology? How can we most effectively use our capabilities and resources to fuel priorities? And ultimately, how can we deliver innovation that really benefits the patients we serve?"

It is a transformational journey that is being guided every step of the way by the Novo

Nordisk Way – even when organisational changes inevitably result in redundancies.

"Sometimes we have to make tough decisions to safeguard the long-term success and sustainability of our company. By adhering to the Novo Nordisk Way, we ensure that we always do this in the most respectful way possible," Lars Fruergaard Jørgensen says. "We are not pursuing simplicity for simplicity's sake. We do it so that we have the resources to seize the biggest opportunities we have, and ultimately to improve the lives of more people living with diabetes and other serious chronic conditions."

Living up to our values

But how is adherence measured? Novo Nordisk has a unique and systematic approach to ensure that employees are living up to the Novo Nordisk Way – a process known as facilitation. These are comprehensive assessments of how the desired behaviours, spelled out as 10 'essentials', are demonstrated in the actions of managers and employees at unit level, conducted by in-house experts with a broad knowledge of the business.

"We can't say one thing and do another," says Lars Fruergaard Jørgensen. "That would lead to cynicism among employees and could create a toxic work environment. The facilitation process – which was pioneered by Novo Nordisk – is an effective way of measuring how we walk the talk, and it shows us where we need to up our game."

By ensuring that all employees stay true to the foundational values of the company, Novo Nordisk is always able to stand on solid ground – even during times of change.

"We have to acknowledge the fact that the world we operate in has changed, and we need to show the confidence, willingness and leadership to tackle bigger challenges than those we've faced in the past," says Lars Fruergaard Jørgensen. "This can seem a daunting task, but by sticking closely to the foundational values that have served us so well throughout our history, we can all think, talk and act like true leaders."

The Novo Nordisk Way

In 1923, our Danish founders began a journey to change diabetes. Today, we are thousands of employees across the world with the passion, skills and commitment to drive change to defeat diabetes and other serious chronic diseases.

- We aim to lead in all disease areas in which we are active.
- Our key contribution is to discover and develop innovative biological medicines and make them accessible to patients throughout the world.
- Growing our business and delivering competitive financial results is what allows us to help patients live better lives, offer an attractive return to our shareholders and contribute to our communities.
- Our business philosophy is one of balancing financial, social and environmental considerations. We call it 'The Triple Bottom Line'.
- We are open and honest, ambitious and accountable, and treat everyone with respect.
- We offer opportunities for our people to realise their potential.
- We never compromise on quality and business ethics.

Every day, we must make difficult choices, always keeping in mind what is best for patients, our employees, and our shareholders in the long run. It's the Novo Nordisk Way.

The 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.

Novo Nordisk's corporate strategy

Novo Nordisk's business is built around a clear purpose: driving change to defeat diabetes and other serious chronic diseases. But how will the company achieve this in a business environment that is increasingly complex, competitive and cost-constrained?

Underpinned by the Novo Nordisk Way, the corporate strategy sets the direction, describing how the company seeks to strengthen its leadership in diabetes and obesity, while diversifying its pipeline and establishing a strong presence in adjacent therapy areas through external collaboration. The company develops innovative medicines to improve people's lives and is also exploring opportunities within digital health, to increase the tools and resources available to patients living with diabetes and other serious chronic diseases.

Strengthening leadership in diabetes

According to the International Diabetes Federation, approximately 425 million people worldwide live with diabetes today. But only around 6% of all these people are in good control of their condition.[1]

Novo Nordisk works to address this significant unmet need in two ways: by strengthening its position as the world's leading supplier of insulin; and by redefining the treatment of type 2 diabetes with a growing portfolio of GLP-1 products.

Within the insulin segment, the key to achieving these goals is to drive the differentiation of Tresiba®, a next-generation basal insulin that has demonstrated significantly lower rates of severe hypoglycaemia vs. insulin glargine U-100 in adults with type 2 diabetes at high risk for cardiovascular events. Another key to success is to expand access to care by pursuing a market-fit approach across the insulin portfolio (see pp 35–37).

"It all starts with the patient. We will improve patients' access to our products and their ability to reach treatment targets, because this is what leads to better health outcomes."

CAMILLA SYLVEST
executive vice president,
Commercial Strategy & Corporate Affairs

GLP-1 therapies continue to be the main drivers of growth for Novo Nordisk. Going forward, the aim is to transform the expectations for type 2 diabetes treatments. Central to the strategy are the efforts to increase the focus and understanding of the cardiovascular (CV) risk inherent in the disease. This will happen by leveraging the strong clinical data from our cardiovascular outcomes trials for our GLP-1 products currently on the market, Victoza® and Ozempic®. The CV safety profile is in addition to the proven benefits of superior blood glucose control and weight reduction.

Novo Nordisk is preparing for regulatory approval of a once-daily tablet version of semaglutide, a long-acting GLP-1 analogue, following the positive results from the PIONEER clinical phase 3 trial programme reported throughout 2018. With the expected regulatory approval and launch of oral semaglutide, Novo Nordisk could be entering the oral antidiabetes segment with the aim of establishing a leadership position. This is another key focus for the company in 2019 and beyond (see p 24).

Strengthening leadership in obesity

Currently, more than 650 million people worldwide live with obesity – defined as a body mass index (BMI) of 30 or above.[2] As such, obesity is rapidly becoming one of the biggest threats to global health as well as a significant economic burden on society.

Despite the size and significance of this threat, there are very few pharmacological interventions available to treat this complex, serious and chronic disease.

One of the main reasons for this unmet need is that obesity is still not widely recognised as a disease. Novo Nordisk is determined to change this. By educating healthcare professionals about the need to acknowledge and treat obesity as a chronic disease, the company intends to ensure that more patients living with obesity receive the treatment they need. This effort begins with advocating to combat the stigma and biases associated with the disease and expanding patient support offerings, by forging new partnerships with professional associations and other stakeholders.

Saxenda®, which was Novo Nordisk's first entry into the market for anti-obesity treatment, has now been launched in 41 countries and is an important driver of sales growth. Building on the success of Saxenda®, the company has an ambition to develop a diverse pipeline of future obesity care products, starting with semaglutide 2.4 mg – a once-weekly GLP-1 for weight management. This is currently being tested in the phase 3 clinical trial programme, STEP, and a dedicated cardiovascular outcomes trial, SELECT (see p 26).

Establishing a strong presence in NASH and CVD

Novo Nordisk is expanding into therapy areas adjacent to diabetes and obesity and has an

ambition to establish a strong presence in these areas. To achieve this, the company is seeking out new research collaborations to leverage external expertise and diversify the pipeline.

This diversification will initially focus on non-alcoholic steatohepatitis (NASH), a progressed stage of non-alcoholic fatty liver disease. NASH is a common comorbidity of diabetes and obesity. 80% of diagnosed NASH patients have obesity, while 35% have type 2 diabetes. Currently, Novo Nordisk has one project in the pipeline, namely semaglutide, as a potential treatment for NASH.

Novo Nordisk is also currently exploring therapies for treatment of cardiovascular diseases (CVD). Atherosclerotic cardiovascular disease is the main cause of death for 70% of diabetes patients in the Western world,[3] and significant unmet needs remain in this area. The company will pursue an entry strategy through semaglutide cardiovascular outcomes trials, to show cardiovascular risk reduction in both type 2 diabetes and non-diabetic patients with obesity.

Finally, Novo Nordisk will also be evaluating external assets in related therapy areas such as heart failure and chronic kidney disease.

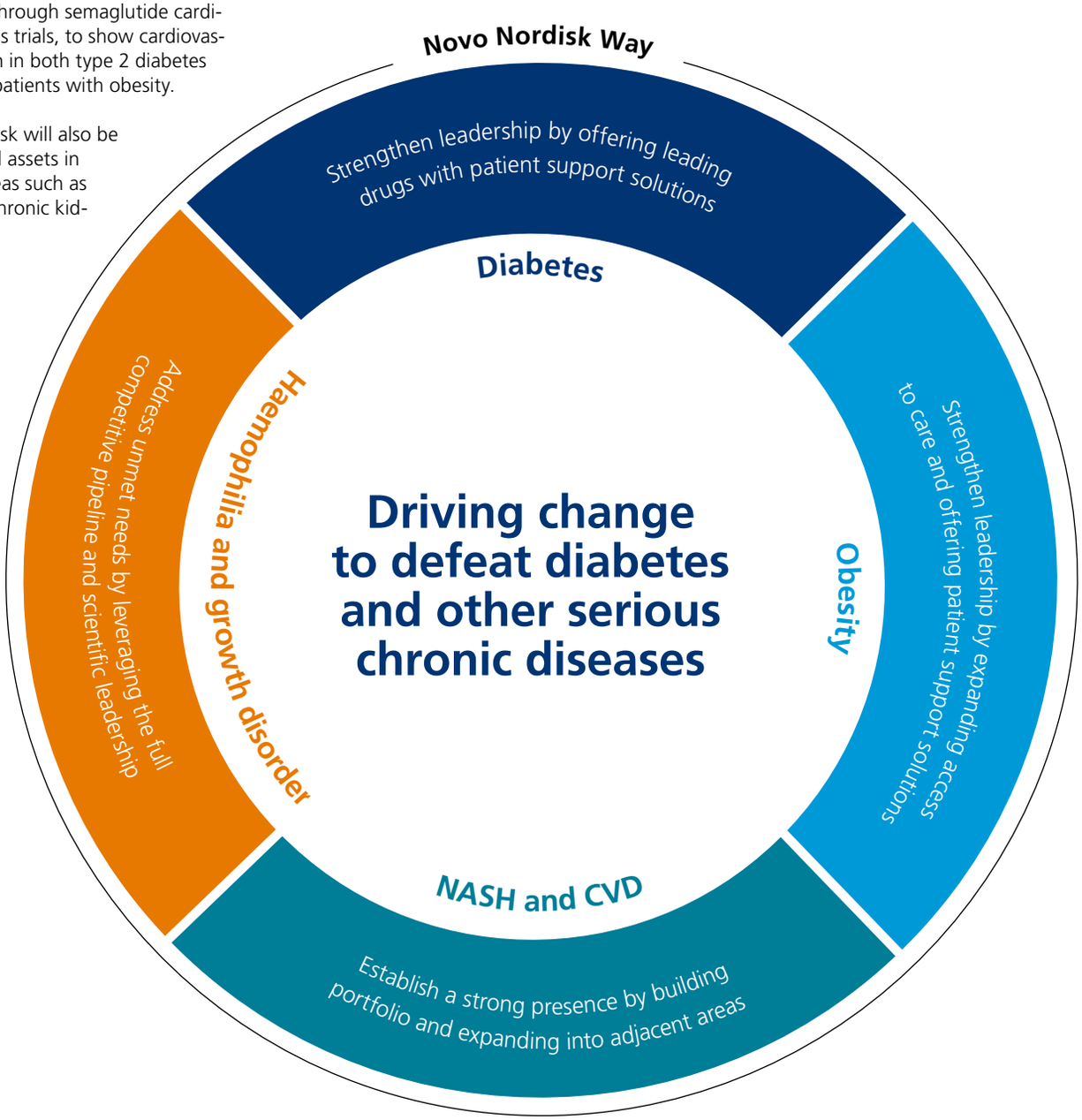
Addressing unmet needs in haemophilia and growth disorder

Following increased pressure from competition in recent years, Novo Nordisk's ambition for the Biopharm business is to return this area to growth.

Product differentiation will play a significant role in achieving this, particularly in haemophilia, where sales of NovoSeven® have declined following the launch of a competing product. Novo Nordisk aims to retain its overall value position by playing to the strengths of the existing haemophilia portfolio – which includes NovoEight®, Refixia® (Rebinyn® in the US) and NovoThirteen® (Tretten® in the US) – and continuing the roll-out of products in new markets worldwide. Novo Nordisk aims to broaden its presence within haemophilia.

In growth hormone disorders, Norditropin® is still the market-leading growth hormone therapy. To strengthen this position, more patients must have access to the treatment and the product's competitiveness will be improved through the roll-out of the upgraded delivery devices, NordiFlex® and FlexPro®. Another key priority will be to bring the long-acting compound somapacitan, currently in phase 3 development, to market. This is expected to become the world's first once-weekly treatment for adult growth hormone deficiency.

Lastly, it is a strategic priority to secure future growth by identifying bolt-on opportunities – either to support the core business or to expand in haematological and endocrine disorders. In 2018, Novo Nordisk sealed agreements to this effect which include securing the worldwide licence to EpiDestiny's sickle cell disease programme and acquiring the US and Canadian rights to Macrilen™, the only FDA-approved oral test for adult growth hormone deficiency.



2018 performance and 2019 outlook

Financial performance

Novo Nordisk's 2018 performance for sales and operating profit growth measured in local currencies was in line with the outlook provided in February 2018. The free cash flow marginally exceeded the outlook provided in February 2018 while the effective tax rate was lower than the outlook provided in February 2018 reflecting non-recurring change in tax provisions. Capital expenditure was in line with the outlook provided in February 2018.

Sales development

Sales remained unchanged in Danish kroner and increased by 5% in local currencies in 2018, reflecting a significant impact from the depreciation of the US dollar and related currencies versus the Danish krone. The sales growth is in line with the latest guidance of '4–5% sales growth measured in local currencies' provided in connection with the announcement in November 2018 for the first nine months of 2018.

Sales growth in local currencies was realised within diabetes and obesity with the majority of growth originating from the GLP-1 diabetes products Victoza® and Ozempic®, the obesity product Saxenda®, as well as long-acting insulin Tresiba® and Xultophy®, partly offset by declining sales of Levemir® and NovoRapid®. Declining sales within biopharmaceuticals were driven by NovoSeven® and 'Other biopharmaceuticals', partly offset by increased sales of NovoEight® and Norditropin®.

In the following sections, unless otherwise noted, market data are based on moving annual total (MAT) from November 2018 and November 2017 provided by the independent data provider IQVIA.

Diabetes care and obesity, sales development

Sales of diabetes and obesity products increased by 1% measured in Danish kroner and by 6% in local currencies to DKK 93,904 million. Novo Nordisk is the world leader in diabetes care with a global value market share of 27.9% compared with 27.4% in 2017.

Insulin

Sales of insulin decreased by 5% measured in Danish kroner and by 1% in local currencies to DKK 59,656 million. The decline in sales measured in local currencies was driven by North America Operations declining by 7%, partly offset by International Operations increasing sales with 5%, where all regions apart from Region Japan & Korea contributed to growth.

Novo Nordisk is the global leader with 46.4% of the total insulin market and 45.2% of the market for modern insulin and new-generation insulin, both measured in volume.

Sales of long-acting insulin (Tresiba®, Xultophy® and Levemir®) decreased by 6% measured in Danish kroner and by 2% in local currencies to DKK 20,844 million.

Sales of Tresiba® (insulin degludec), the once-daily new-generation insulin, reached DKK 8,035 million compared with DKK 7,327 million in 2017. Tresiba® has now been launched in 76 countries.

Sales of Xultophy®, a once-daily combination of insulin degludec (Tresiba®) and liraglutide (Victoza®), reached DKK 1,614 million compared with DKK 729 million in 2017. Sales growth was driven by both International Operations, where predominantly Region Europe contributed to growth, and North America Operations. Xultophy® has now been launched in 26 countries.

Sales of premix insulin (Ryzodeg® and NovoMix®) decreased by 5% measured in Danish kroner and remained unchanged in local currencies to DKK 10,194 million.

Sales of Ryzodeg®, a soluble formulation of insulin degludec and insulin aspart, reached DKK 714 million compared with DKK 492 million in 2017. Ryzodeg® has now been launched in 27 countries.

Sales of fast-acting insulin (Fiasp® and NovoRapid®) decreased by 4% measured in Danish kroner and increased by 1% in local currencies to DKK 19,353 million.

Sales of Fiasp®, the novel mealtime fast-acting insulin aspart, reached DKK 590 million. Fiasp® has now been launched in 25 countries.

GLP-1 therapy for type 2 diabetes

Sales of GLP-1 products for type 2 diabetes (Victoza® and Ozempic®) increased by 13% measured in Danish kroner and by 18% in local currencies to DKK 26,129 million. Ozempic® has now been marketed in eleven countries in North America Operations and Region Europe and initial feedback is encouraging. Sales growth is predominantly driven by North America Operations comprising 81% share of the GLP-1 growth. The GLP-1 segment's value share of the total diabetes market has increased to 14.5% compared with 11.8% 12 months ago. Novo Nordisk continues to be the market leader in the GLP-1 segment with a 46% value market share.

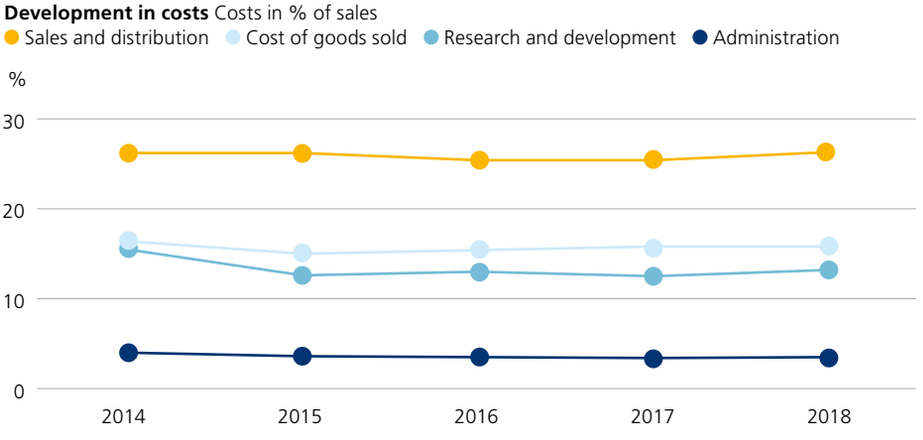
Other diabetes

Sales of other diabetes products, predominantly consisting of oral antidiabetic products, needles and GlucaGen®HypoKit®, decreased by 1% measured in Danish kroner and increased by 3% in local currencies to DKK 4,250 million. Increasing sales measured in local currencies were seen in International Operations, where Region Latin America and Region China contributed to sales growth.

Saxenda® (obesity)

Sales of Saxenda®, liraglutide 3 mg for weight management, increased by 51% measured in Danish kroner and by 60% in local currencies to DKK 3,869 million. Sales growth was driven by both North America Operations and International Operations, where Region AAMEO, Region Latin America, Region Europe and Region Japan & Korea contributed to growth. In the US, Saxenda® has obtained broad commercial formulary market access, but generally with prior authorisation requirements. Saxenda® has now been launched in 41 countries.

Development in costs Costs in % of sales



Biopharmaceuticals sales development

Sales of biopharmaceutical products decreased by 5% measured in Danish kroner and by 1% in local currencies to DKK 17,927 million. Decreasing sales measured in local currencies were realised in North America Operations, partly offset by increasing sales in International Operations.

Haemophilia

Sales of haemophilia products decreased by 9% measured in Danish kroner and by 5% in local currencies to DKK 9,576 million. The sales decrease was primarily driven by lower NovoSeven® sales in the US and Region Europe reflecting increased competition from a recently introduced product as well as increased clinical trial activity from competing products, partly offset by increased NovoSeven® sales in Region Latin America due to timing of tender deliveries. Furthermore, sales of NovoEight® in Region Europe and Region AAMEO contributed positively to the sales development as well as Refixia®, the long-acting factor IX product for people with haemophilia B, which now has been launched in 12 countries.

Growth disorders (Norditropin®)

Sales of growth disorder products increased by 3% measured in Danish kroner and by 7% in local currencies to DKK 6,834 million. The sales growth measured in local currencies was driven by positive contribution from both North America Operations and International Operations. Novo Nordisk is the leading company in the global human growth disorder market with a 26% market share measured in volume.

Development in costs and operating profit

The cost of goods sold was broadly unchanged compared to 2017 at DKK 17,617 million, resulting in a gross margin of 84.2% measured in Danish kroner, compared with 84.2% in 2017. The unchanged gross margin reflects a negative currency impact of 0.2 percentage point. The gross margin was positively impacted by improved productivity and positive contribution from product mix due to higher Victoza®, Tresiba® and Saxenda® sales, partly countered by lower contribution from NovoSeven®. The gross margin was negatively impacted by lower prices primarily related to the basal insulin segment in the US.

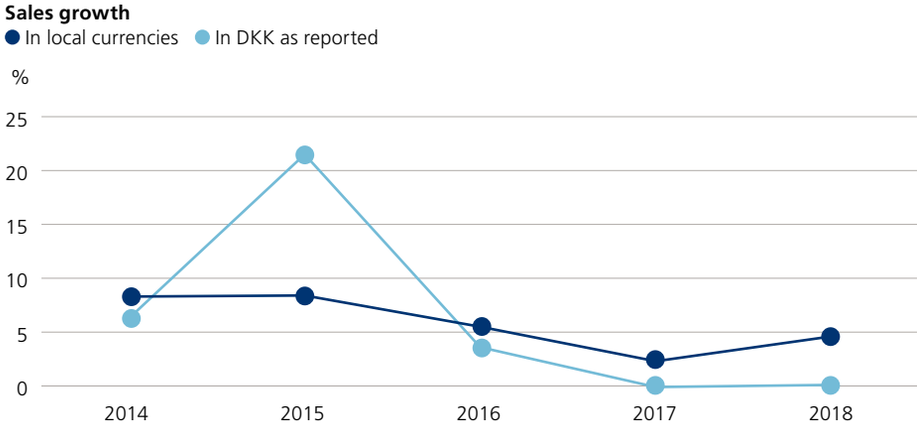
Sales and distribution costs increased by 4% in Danish kroner and by 7% in local currencies to DKK 29,397 million. The increase in sales and distribution costs reflects higher promotional activities in both North America Operations and International Operations to support Victoza® and Saxenda® as well as launch activities for Ozempic® and severance costs related to lay-offs in the commercial organisation, partly offset by lower costs for legal cases.

Research and development costs increased by 6% in Danish kroner and by 8% in local currencies to DKK 14,805 million, reflecting higher costs for both research and development. The increase in research costs was driven by increased costs for the diabetes portfolio and costs related to 'other serious chronic diseases'. The increase in development costs was predominantly driven by the expense of the priority review voucher for oral semaglutide, injectable semaglutide in obesity for the STEP and SELECT programmes, partly offset by wind-down of the PIONEER programme. Research and development costs were also impacted by severance-related costs.

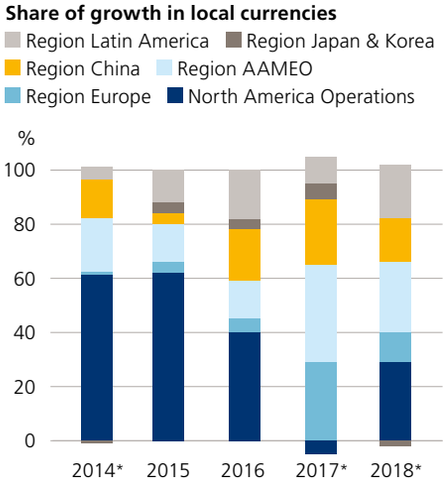
Administration costs increased by 3% in Danish kroner and increased by 7% in local currencies to DKK 3,916 million.

Other operating income (net) was DKK 1,152 million compared with DKK 1,041 million in 2017. In 2018, Novo Nordisk received milestone payments from partners related to out-licensed clinical assets, and Novo →

Sales growth

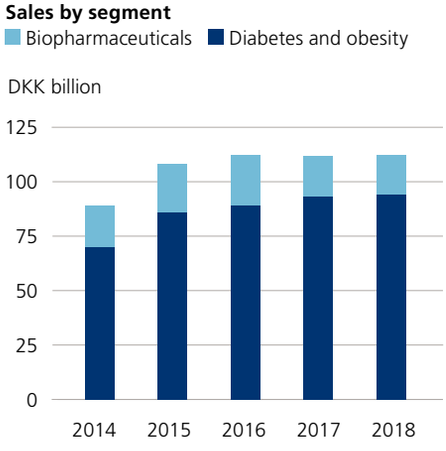


Share of growth in local currencies

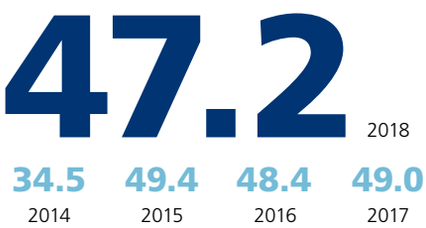


* In 2014, Japan & Korea contributed -1% to the total growth
* In 2017, North America contributed -5% to the total growth
* In 2018, Japan & Korea contributed -2% to the total growth

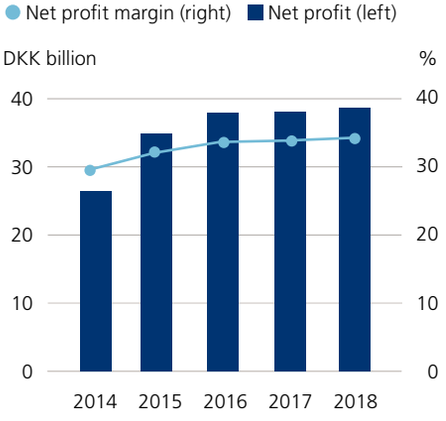
Sales by segment



Operating profit (DKK billion)



Net profit



Nordisk recorded a net gain of DKK 122 million following the disposal of 2 million shares in NNIT to Novo Holdings A/S.

Operating profit decreased by 4% in Danish kroner and increased by 3% in local currencies to DKK 47,248 million, which is in line with the latest guidance for operating profit growth measured in local currencies of '2% to 5%' in 2018. The development in operating profit growth reflects the depreciation of the US dollar and related currencies versus the Danish krone as well as costs related to lay-offs in second half of 2018. Adjusting for severance costs and the priority review voucher, operating profit increased by 6% in local currencies.

Financial items (net) and tax

Financial items (net) showed a net gain of DKK 367 million compared with a net loss of DKK 287 million in 2017. The reported net financial item in 2018 is broadly in line with the latest guidance of 'gain of around DKK 0.5 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 gain of DKK 298 million compared with a loss of DKK 187 million in 2017. This development reflects a gain on foreign exchange hedging involving especially the US dollar versus the Danish krone, partly offset by a net loss from non-hedged currencies.

A negative market value of financial contracts as per the end of December 2018 of approximately DKK 1.7 billion has been deferred for recognition in 2019.

The effective tax rate for 2018 was 18.9%, which is broadly in line with the latest guidance of a tax rate of '19% to 20%' for the full year 2018. The effective tax rate is positively impacted by non-recurring change in tax provisions related to settlement of international tax cases covering multiple years.

Capital expenditure and free cash flow

Net capital expenditure for property, plant and equipment was DKK 9.5 billion compared with DKK 8.7 billion in 2017, which is in line with the latest guidance of 'around DKK 9.5 billion'. Net capital expenditure was primarily related to investments in a new production facility for a range of diabetes active pharmaceutical ingredients in Clayton, North Carolina, USA, a new diabetes filling capacity in Hillerød, Denmark and an expansion of the manufacturing capacity for biopharmaceutical products in Kalundborg, Denmark.

Free cash flow was DKK 32.5 billion compared with DKK 32.6 billion in 2017, which is in line with the latest guidance of 'DKK 29–33 billion'. The broadly unchanged free cash flow compared with 2017 primarily reflects increased capital expenditure, increased investment in intangible assets reflecting an acquisition of a priority review voucher for oral semaglutide and higher tax payments partly offset by the timing of rebate payments in the US and higher net profit.

Outlook 2019

For 2019, sales growth is expected to be 2% to 5%, measured in local currencies. This guidance reflects expectations for robust performance for the GLP-1-based diabetes products Victoza® and Ozempic® and the obesity product Saxenda® as well as the portfolio of new-generation insulin. The guidance also reflects intensifying global competition both within diabetes and biopharmaceuticals, especially within the haemophilia inhibitor segment. Furthermore, continued pricing pressure within diabetes is expected, especially in the US. This includes the previously communicated funding of the Medicare Part D coverage gap, which has been changed based on new legislation with effect from 2019 and with an expected negative impact of approximately DKK 2 billion. Given the current exchange rates versus the Danish krone, growth reported in DKK is expected to be around 2 percentage points higher than in local currencies.

For 2019, operating profit growth is expected to be 2% to 6%, measured in local currencies. The expectation for operating profit growth primarily reflects the sales growth outlook and continued focus on cost control. Operating profit growth is negatively impacted due to the changes in the funding of the coverage gap. Furthermore, growth in operating profit is positively impacted by the costs for the priority review voucher, which was expensed in fourth quarter of 2018. Given the current exchange rates versus the Danish krone, growth reported in DKK is expected to be around 4 percentage points higher than in local currencies.

For 2019, Novo Nordisk expects financial items (net) to amount to a loss of around DKK 2.4 billion, offsetting the positive currency impact on operating profit. The current expectation for 2019 reflects losses associated with foreign exchange hedging contracts, mainly related to the US dollar versus the Danish krone and losses on non-hedged currencies.

The effective tax rate for 2019 is expected to be in the range of 20–22%.

Capital expenditure is expected to be around DKK 9 billion in 2019, primarily related to investments in additional capacity for active pharmaceutical ingredient production within diabetes and an expansion of the diabetes filling capacity. Depreciation, amortisation and impairment losses are expected to be around DKK 4.5 billion. The increased level of depreciation, amortisation and impairment losses in 2019 reflects the inclusion of amortisation of lease assets following the introduction of IFRS 16. Free cash flow is expected to be DKK 29–34 billion.

All of the above expectations are based on assumptions that the global economic and political environment will not significantly change business conditions for Novo Nordisk during 2019 including the potential implications from Brexit, major healthcare reforms, and 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 from a potential completion of a significant bolt-on acquisition during 2019.

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 on the opposite side.

Long-term financial targets

Novo Nordisk introduced four long-term financial targets in 1996 to balance short- and long-term considerations, thereby ensuring a focus on shareholder value creation. The targets were subsequently revised and updated on several occasions most recently in connection with the report for the first nine months of 2016 released in October 2016. The long-term financial targets are meant to provide the company's shareholders with a view of Novo Nordisk's

Key invoicing currencies	Impact on Novo Nordisk's operating profit in the next 12 months of a 5% immediate movement in currency	Hedging period (months)
USD	DKK 2,000 million	11
CNY	DKK 350 million	7*
JPY	DKK 160 million	12
GBP	DKK 85 million	10
CAD	DKK 90 million	10

* Chinese yuan traded offshore (CNH) used as proxy when hedging Novo Nordisk's CNY currency exposure.

Outlook 2019

The current expectations for 2019 are summarised in the table below:

Expectations are as reported, if not otherwise stated	Expectations 1 February 2019
Sales growth	
in local currencies	2% to 5%
as reported	Around 2 percentage points higher than in local currencies
Operating profit growth	
in local currencies	2% to 6%
as reported	Around 4 percentage points higher than in local currencies
Financial items (net)	Loss of around DKK 2.4 billion
Effective tax rate	20% to 22%
Capital expenditure	Around DKK 9 billion
Depreciation, amortisation and impairment losses	Around DKK 4.5 billion
Free cash flow	DKK 29–34 billion

financial aspirations over an undefined period of time. Hence, the long-term financial targets are not a projection of Novo Nordisk's financial outlook or expected growth, nor do they relate to any single year.

The target level for operating profit after tax (OPAT) to net operating assets (NOA) is adjusted from 125% to 80%. The adjusted target reflects the changes to accounting principles for leases (IFRS 16) as of 1 January 2019 and the investment level in both tangible and intangible assets.

The target level for cash to earnings (three-year average) is adjusted from 90% to 85%. The adjusted target reflects the investment level in both tangible and intangible assets. Given the inherent volatility in this ratio, the target will be pursued looking at the average over a three-year period.

The target for 'operating profit growth' remains unchanged.

The long-term financial targets have been prepared based on the assumption of a continuation of the current business environment. Significant changes to the business environment, including the structure of the US healthcare system, regulatory requirements, pricing and market access environment, competitive environment, healthcare reforms, the financial implications in case of a significant bolt-on acquisition, exchange rates and changes to accounting standards may significantly impact the time horizon for achieving the long-term financial targets or require them to be revised.

Long-term financial targets	Previous target	Adjusted target
Operating profit growth	5%	5%
Operating profit after tax to net operating assets	125%	80%
Cash to earnings (three-years-average)	90%	85%

Forward-looking statements

Novo Nordisk's reports filed with or furnished to the US Securities and Exchange Commission (SEC), including this statutory Annual Report 2018 and Form 20-F, which are both expected to be filed with the SEC in February 2019 in continuation of the publication of this Annual Report 2018, 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 2018, examples of forward-looking statements can be found under the headings '2018 Performance and 2019 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 2018, 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 2018, reference is made to the overview of risk factors in 'Risk management enables better decision-making' on pp 41–43 of this Annual Report 2018.

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 2018 whether as a result of new information, future events or otherwise.

Research and Development

2018 was a year in which Novo Nordisk made significant progress in its research and development pipeline and reached several regulatory milestones.

Below are the highlights from the key development projects. On pp 20–21, the pipeline overview shows compounds in clinical development, and further details on clinical trials can be found in the company announcements and press releases published by Novo Nordisk during 2018, which are available at novonordisk.com.

R&D strategy

In September, Novo Nordisk announced the intention to restructure its R&D organisation to accelerate the expansion and diversification of its pipeline across serious chronic diseases. To enable increased investment in transformational biological and technological innovation within both core and new therapy areas, approximately 400 R&D positions in Denmark and China were closed.

To support its strategic ambitions, Novo Nordisk established four Transformational Research Units in 2018 to pursue novel treatment modalities and platform technologies. These biotech-like units, based in Denmark, the US and the UK, will operate as satellites of Novo Nordisk's central R&D function and will drive innovation in priority fields such as translational cardio-metabolic research and stem cell research.

Diabetes

During 2018, Novo Nordisk successfully completed the ten PIONEER phase 3a trials with oral semaglutide. Overall, the higher doses of oral semaglutide significantly improved blood sugar control and reduced body weight compared to major treatment classes including SGLT2i, DPP4i and GLP-1. In addition, oral semaglutide showed a non-statistical significant reduction in major adverse cardiovascular events of 21% compared with standard of care. Following the successful completion of the PIONEER programme, Novo Nordisk will proceed the regulatory process in 2019.

In February, the new once-weekly GLP-1, Ozempic®, was approved in Europe and in March, Ozempic® was approved in Japan. The approvals were based on the phase 3a SUSTAIN development programme, enrolling more than 8,000 people with type 2 diabetes.

In March, the FDA approved the inclusion of cardiovascular and severe hypoglycaemia data from the DEVOTE trial in the US Tresiba® label. The DEVOTE trial showed that treatment with Tresiba® resulted in a 40% statistically significant lower rate of severe hypoglycaemia compared to insulin glargine U100.

In August, the first human dose trial for the next-generation oral GLP-1, OG2023SC, was initiated. The trial is designed to investigate the safety, tolerability and pharmacokinetics of OG2023SC in a SNAC tablet formulation.

Also in August, Novo Nordisk completed the Ellipse trial with Victoza® in children and adolescents (10–17 years) with type 2 diabetes. Novo Nordisk has submitted the paediatric results from Ellipse in the US and in Europe to seek label expansion and six months' patent extension.

In November, Novo Nordisk initiated phase 2 with once-weekly insulin LAI287 in a trial with 350 insulin-naïve people with type 2 diabetes. The main objective of the trial is to assess the safety and efficacy of LAI287.

Obesity

During 2018, Novo Nordisk initiated the phase 3 programme, STEP, for injectable semaglutide 2.4 mg as a treatment for obesity. Four trials were initiated under the STEP programme and approximately 4,500 people are expected to be enrolled. All four trials have a duration of 68 weeks and the STEP programme is expected to be completed in 2020.

In October, Novo Nordisk initiated the cardiovascular outcomes trial SELECT. In this trial, Novo Nordisk will investigate the impact of injectable semaglutide 2.4 mg on the incidence of major adverse cardiovascular events compared to placebo in people with established cardiovascular disease and either overweight or obesity. SELECT is expected to enrol approximately 17,500 people and will run for around five years.

Biopharm business

In February, Novo Nordisk submitted N8-GP, an extended half-life factor VIII for treatment of people with haemophilia A, for marketing authorisation in the US and in Europe. The submission was based on results from the pathfinder clinical trial programme, which included more than 250 people with haemophilia A and investigated efficacy and safety of N8-GP in adults and children as well as people undergoing surgery.

In August, Novo Nordisk completed the extension phase of REAL 1, the pivotal phase 3a trial with the long-acting recombinant growth hormone, somapacitan. REAL 1 was a 86 weeks trial that enrolled 301 treatment-naïve adults with growth hormone deficiency. Overall, the body composition changes observed in the 34-weeks main phase of the trial were maintained in the 52-weeks extension phase.

In November, Novo Nordisk successfully completed REAL 3, a 52-week paediatric phase 2 trial with somapacitan. REAL 3 is designed to evaluate the efficacy of multiple dose regimens of treatment with once-weekly somapacitan in 59 growth hormone treatment-naïve pre-pubertal children with growth hormone deficiency, compared to daily Norditropin® administration.

Also in November, Novo Nordisk completed alleviate 1, a combined single and multiple dose trial evaluating safety, tolerability and pharmacokinetics with subcutaneous N8-GP. In the trial, anti-drug antibodies were detected after repeated treatment with subcutaneous N8-GP in five out of 26 patients. The antibody formation was considered a result of the subcutaneous route of administration as a similar antibody pattern has not been observed following intravenous administration of N8-GP. Based on the clinical findings in alleviate 1, Novo Nordisk decided to discontinue the development of subcutaneous N8-GP.

During 2018, Novo Nordisk successfully completed the main phase of the phase 2 trials explorer4, in people with haemophilia A and B with inhibitors, and explorer5, in people with severe haemophilia A without inhibitors, with concizumab, a subcutaneous by-passing agent, to evaluate the efficacy and safety of prophylactic treatment for people with haemophilia. Across the two trials, concizumab was safe and well-tolerated and there were no issues with treatment of breakthrough bleeds. All 57 patients completing the main phase of the two trials chose to continue in the extension phase of the trials. Phase 3 is expected to be initiated in the second half of 2019.

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 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's business is built on the ambition to drive change to defeat diabetes and other serious chronic diseases. This involves helping people with these diseases live better, healthier lives and enhancing access to medical treatment and quality of care.

In 2018, Novo Nordisk provided medical treatment to an estimated 29.2 million people with diabetes worldwide, compared with 27.7 in 2017. This 5% increase was primarily driven by sales of human insulin (0.6 million people) and long-acting, premix and fast-acting modern and new-generation insulin (0.6 million people).

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 a result, an estimated 0.3 million people were treated with insulin for on average USD 0.12 per day as in 2017. Beyond this commitment, Novo Nordisk sold human insulin at or below the ceiling price in other countries, reaching an estimated 5 million people in 2018, which is the same level as in 2017.

As of 2019, the guarantee is expanded to include 29 middle-income countries as defined by the World Bank. This means that a total of 78 countries, home of 124 million people with diabetes as well as selected humanitarian organisations, can benefit from this guarantee.

Novo Nordisk has several initiatives, programmes and partnerships focused on increasing access to care all over the world. See novonordisk.com/sustainable-business/performance-on-tbl/access-to-care.html.

Novo Nordisk takes a patient-centred approach in its care delivery model and learns with patients. (See p 37) and novonordisk.com/patients/DEEP.html.

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 2018, the total number of employees was 43,202, corresponding to 42,672 full-time positions, which is a 1% increase compared with 2017. The development in employees was mainly driven by Region China, Region Europe, the global service centre in Bangalore, India and expansions of production facilities in Algeria, China and the US. Employee turnover increased from 11.0% in 2017 to 11.7% in 2018 as a result of organisational adjustments in line with the company's strategy for growth.

In 2018, Novo Nordisk restructured the R&D organisation to accelerate the expansion and diversification of its pipeline and enable increased investment in transformational biological and technological innovation. Additional restructuring initiatives across functions and geographies were made to support the commercial activities for the portfolio of innovative products. Consequently, the total workforce was reduced by approximately 1,300 employees. These reductions are not yet fully reflected in the reported number of full-time positions for the year 2018 due to notice periods in the various jurisdictions.

Novo Nordisk's commitment to respect and support human and labour rights for its employees is described in the Global Labour Guidelines, a uniform minimum labour standard for all Novo Nordisk sites and employees. The guidelines cover Working Hours, Living Wage and Leave, Employee Privacy, Equal Treatment and Non-Discrimination, Employee Representation, Forced and Child Labour, Grievance Mechanisms and other related Novo Nordisk policies and guidelines. An ongoing risk management process is in place to identify, prevent, mitigate and account for Novo Nordisk's potential adverse human and labour rights impacts. To date, Novo Nordisk has reported mitigated actions related to living wage, child labour, non-discrimination, equal treatment, employee representation, freedom of association and working hours. In 2018, the Global Labour Guidelines underwent an external expert review. Actions will be taken and reported in 2019. Read more at novonordisk.com/sustainable-business.html

By the end of 2018, the gender distribution among managers was 60% men and 40% women, unchanged from 2017. Of the newly promoted managers, 38% were women, compared with 43% in 2017. The decreasing share of women among newly appointed managers was driven by fewer women appointed to entry level positions (manager and team leader). At the same time a higher share of women were appointed to senior management positions (SVP, CVP, VP and GM), especially among external hires.

Diversity, including a strong focus on gender diversity, remains high on the agenda. Novo Nordisk acknowledges the value and strength of diversity and is continuously assessing progress and impact. Several key initiatives are taken to accelerate the readiness and pipeline of diverse senior leaders and to further embed diversity and inclusion.

Section 99b of the Danish Financial Statements Act requires that Danish companies of a certain size report on diversity. Of the various Novo Nordisk subsidiaries, four Danish subsidiaries are required to report on diversity due to the size of the four companies. The four companies are Novo Nordisk Pharmatech A/S, NNE A/S and two regional holding companies: Novo Nordisk Region Europe A/S and Novo Nordisk Region International Operations A/S. The Board of Directors for all four companies meet the Danish diversity requirements. (See p 47) on diversity in the Novo Nordisk Board of Directors.

The average frequency rate of occupational accidents with absence was 2.4 per million working hours in 2018 compared with 2.7 in 2017. As in 2017, there were no work-related fatalities 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 company's Triple Bottom Line business principle.

Business ethics and human rights

In 2018, Novo Nordisk updated and expanded its Business Ethics Code of Conduct. Business ethics is about acting with integrity and in compliance with international standards for responsible business conduct. As part of the update, the Code of Conduct now incorporates Novo →

Nordisk's commitment to meet the corporate responsibility to respect human rights as set out in the UN Guiding Principles on Business and Human Rights. This commitment was reemphasised to all employees and business partners in December 2018, when Novo Nordisk took an active part in marking the 70th anniversary of the Universal Declaration of Human Rights.

Progress was made in regard to management of salient human rights issues beyond those already addressed by existing global standards and programmes. In 2018, achievements include increasing the share of Novo Nordisk subsidiaries providing access to safety reporting with local language directions on local websites, from 83% in 2017 to 90% in 2018. Human rights risks in the direct spend supply chain were assessed, with a focus on modern slavery risks with support from independent third party experts. See Novo Nordisk's modern slavery statement at novonordisk.com/annualreport.

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 2018, as in 2017, 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.

A total of 33 business ethics reviews were completed in 2018 with 113 findings, compared with 34 reviews with 130 findings in 2017. Based on the completed business ethics reviews, it is Group Internal Audits assessment that the business ethics compliance level, in 2018 as in 2017, 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.

In 2018, a total of 294 supplier audits were conducted to assess compliance levels with the company's standards for suppliers. These audits are undertaken by Novo Nordisk's own organisation. Of these, 19 were responsible sourcing audits compared with 28 in 2017. The decrease is due to the fact that most new suppliers to production in 2018 were categorised as low risk suppliers. Only high-risk suppliers, identified through a robust risk assessment, are selected for responsible sourcing audits. There were no critical findings in 2018.

Product quality

Novo Nordisk had three product recalls from the market in 2018, compared with six in 2017. None of these recalls were critical. Local health authorities were informed in all instances to ensure that distributors, pharmacies, doctors and patients received appropriate information.

In 2018, as in 2017, there were no failed inspections by regulatory authorities among those resolved at year-end. A total of 75 inspections were conducted in 2018 at Novo Nordisk's sites, at clinics conducting investigations for Novo Nordisk or for voluntary ISO 9001 certification, compared with 83 inspections in 2017. At year-end, 55 inspections had been passed and 20 were unresolved.

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 on p 72 and note 9.7 total tax contribution on p 102.

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

Long-term social targets reflect Novo Nordisk's ambition to be a sustainable business and support long-term financial performance, balancing responsibility with profitability, with the aim of creating sustainable value for shareholders and other stakeholders.

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

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 2018, 91% of employees responded positively to a set of questions to measure the level of engagement compared with 90% in 2017. The target is at least 90%.

Novo Nordisk's reputation 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 reputation score, measured on a scale of 0–100, increased to 83.3, from 79.3 in 2017. Data were collected between June and September 2018; a score between 70 and 80 is considered strong. The target is at least 80.

Read more details in the social statement on pp 97–102 and at novonordisk.com/sustainable-business.html.

Environmental performance

Novo Nordisk accounts for environmental performance on three dimensions: use of resources, emissions and waste in pursuit of the ambition to be a sustainable business. Policies are in place to prevent any unwanted impacts and contribute to eco-balance through a circular approach to environmental management, product stewardship and climate action.

Resources

In 2018, the energy consumption at production sites remained stable compared with 2017. Novo Nordisk continues to focus on energy efficiency, and energy projects implemented in 2018 are expected to lead to annual savings of approximately 53,000 GJ - more than tripling the savings in 2017. 77% of the power (electricity) used at the production sites came from renewable sources such as wind and hydropower.

Water consumption at production sites decreased by 5% in 2018. Three facilities in Algeria, Brazil and China, accounting for 14% of Novo Nordisk's total water use in 2018, are located in areas that could be impacted by water stress or large seasonal variations.

Optimisation of water consumption is a continued focus area, particularly at sites located in water stressed regions. One water recycling project at the production site in Brazil led to a 17% reduction of the total water consumption at this site.

Emissions

In 2018, CO_2 emissions from production sites and product distribution decreased by 2% to 127,000 tons. As of 2018, Novo Nordisk has expanded the scope to also cover the company's global CO_2 emissions from global offices, laboratories, company cars and business flights, which amounted to 269,000 tons, of which 114,000 tons were from operations.

Emissions from company cars amounted to 62,000 tons CO_2 in 2018. In 2018, a new global car policy was implemented, which encourages shifting to hybrid and electric cars.

Emissions from business flights are estimated to reach 54,000 tons CO_2 and are an area of continuous improvement for Novo Nordisk. Novo Nordisk encourages its employees to use virtual meetings, and, in 2018, video conferencing increased by 16%.

Emissions from product distribution remained stable at 39,000 tons CO_2, despite increasing volumes of products distributed globally. It remains a priority for Novo Nordisk to increase the volumes distributed by sea, as sea transport reduces both CO_2 emissions and costs relative to product volume.

Several Novo Nordisk suppliers have committed to targets and actions to reduce their carbon emissions. As part of Novo Nordisk's supply chain programme, more than 30 key suppliers were engaged in 2018 to increase energy efficiency and use of renewable energy in their operations.

Waste

Compared to 2017, waste from production sites decreased by 10% in 2018. This was primarily due to decreased amounts of organic residues from fermentation processes generated at the API facility in Kalundborg, Denmark.

A new biogas plant was put in operation in 2018 in Denmark for local handling of the organic residues. The biogas plant converts residues into bio-natural gas and fertiliser, which is used on local farmland. The project is a partnership between Novo Nordisk, Novozymes and the energy company, Ørsted.

Overall, 94% of all waste generated at production sites is recycled, used for biogas production, or incinerated in waste-to-energy plants.

Circular for Zero

In 2018, Novo Nordisk set an ambition to have zero negative environmental impact. To get there, a new environmental strategy was adopted that addresses risks across the entire value chain, including climate change, water and resource scarcity, pollution and plastic waste.

The strategy embraces a circular mindset - designing and producing products so that they can be recovered and re-used, and reshaping business practices to minimise consumption and eliminate waste by turning it into new resources (see p 29).

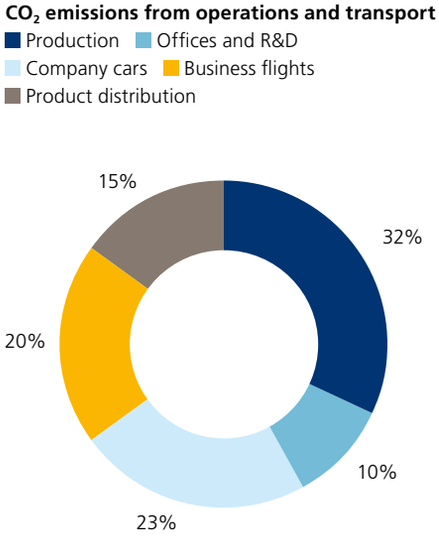
Long-term environmental targets

Long-term environmental targets reflect Novo Nordisk's ambition to be a sustainable business and support long-term financial performance, balancing responsibility with profitability, with the aim of creating sustainable value for shareholders and other stakeholders.

In 2015, Novo Nordisk set a target for all production sites to run solely on power from renewable sources by 2020. The company has signed up to the RE100 initiative, a global initiative that unites companies worldwide in the effort to promote conversion to renewable sources. With 77% of power already provided from renewable sources, Novo Nordisk expects to reach its RE100 goal of achieving 100% renewable power at production sites by 2020. A long-term solution for renewable power in Europe was finalised in 2018 with the power company, Vattenfall. This solution will secure power from Danish windfarms to Novo Nordisk's European production sites from 2020. During 2018, Novo Nordisk continued to explore opportunities with energy suppliers in the US for renewable power solutions for all Novo Nordisk's activities in the US.

In 2018, a new target was set, as part of the environmental strategy, committing to zero CO_2 emissions from operations and transportation by 2030. The target covers global operations, including offices and laboratories, along with company cars, business flights and product distribution. The target will be met by shifting to renewable energy sources whenever possible, using hybrid and electric cars and increasing use of virtual meetings. For emissions that cannot be eliminated, Novo Nordisk will compensate by investing in CO_2-reducing projects.

CO_2 emissions from operations and transport



Read more details in the consolidated environmental statement on pp 103–105 and at novonordisk.com/sustainable-business.html.

Performance highlights

DKK million	2014	2015	2016	2017	**2018**	2017–2018
Financial performance						Change
Net sales	88,806	107,927	111,780	111,696	111,831	0%
Sales growth in local currencies[1]	8.3%	8.4%	5.5%	2.3%	4.6%	
Foreign currency impact	(2.0%)	13.1%	(1.9%)	(2.4%)	(4.5%)	
Net sales growth as reported	6.3%	21.5%	3.6%	(0.1%)	0.1%	
Depreciation, amortisation and impairment losses	3,435	2,959	3,193	3,182	3,925	23%
Operating profit	34,492	49,444	48,432	48,967	47,248	(4%)
Net financials	(396)	(5,961)	(634)	(287)	367	N/A
Profit before income taxes	34,096	43,483	47,798	48,680	47,615	(2%)
Net profit for the year	26,481	34,860	37,925	38,130	38,628	1%
Total assets	77,062	91,799	97,539	102,355	110,769	8%
Equity	40,294	46,969	45,269	49,815	51,839	4%
Capital expenditure, net (property, plant and equipment)	3,986	5,209	7,061	8,679	9,524	10%
Free cash flow[1]	27,396	34,222	39,991	32,588	32,536	(0%)
Financial ratios[1]						
Percentage of sales:						
Sales and distribution costs	26.2%	26.2%	25.4%	25.4%	26.3%	
Research and development costs	15.5%	12.6%	13.0%	12.5%	13.2%	
Administrative costs	4.0%	3.6%	3.5%	3.4%	3.5%	
Gross margin	83.6%	85.0%	84.6%	84.2%	84.2%	
Operating margin	38.8%	45.8%	43.3%	43.8%	42.2%	
Net profit margin	29.8%	32.3%	33.9%	34.1%	34.5%	
Effective tax rate	22.3%	19.8%	20.7%	21.7%	18.9%	
Equity ratio	52.3%	51.2%	46.4%	48.7%	46.8%	
Return on equity	63.9%	79.9%	82.2%	80.2%	76.0%	
Cash to earnings	103.5%	98.2%	105.4%	85.5%	84.2%	
Payout ratio	48.7%	46.6%	50.2%	50.4%	50.6%	
Long-term financial targets[1]						**Target[2]**
Operating profit growth	9.5%	43.3%	(2.0%)	1.1%	(3.5%)	5%
Operating profit growth adjusted[3]	9.5%	35.2%	3.9%	1.1%	(3.5%)	
Operating profit growth in local currencies adjusted[3]	12.7%	12.7%	6.2%	4.8%	2.8%	
Operating profit after tax to net operating assets	101.0%	148.7%	150.2%	143.2%	116.7%	125%
Cash to earnings (three-year average)	93.1%	96.8%	102.4%	96.4%	91.7%	90%

1. For definitions, see pp 95–96. **2.** Targets effective 31 December 2018. The long-term financial targets were adjusted in February 2019. See '2019 Outlook' p 12. **3.** 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 geographic region

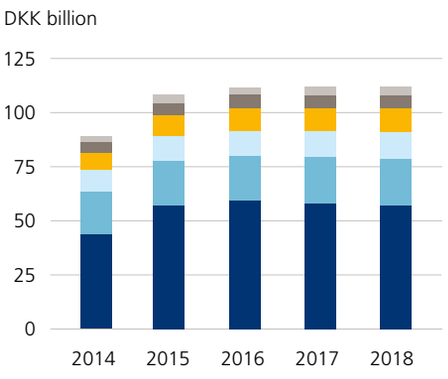
Region Latin America, Region Japan & Korea, Region China, Region AAMEO, Region Europe, North America Operations

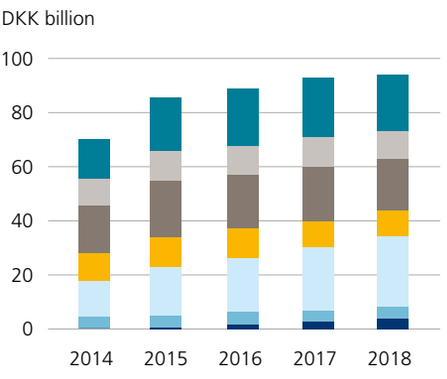
Diabetes and obesity sales

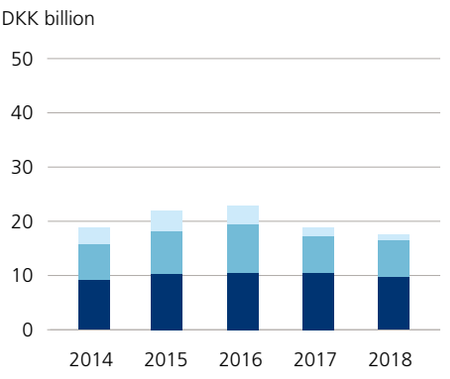
Long-acting insulin, Premix insulin, Fast-acting insulin, Human insulin, GLP-1, Other diabetes, Obesity (Saxenda®)

Biopharmaceuticals sales

Other biopharmaceuticals, Growth disorders, Haemophilia





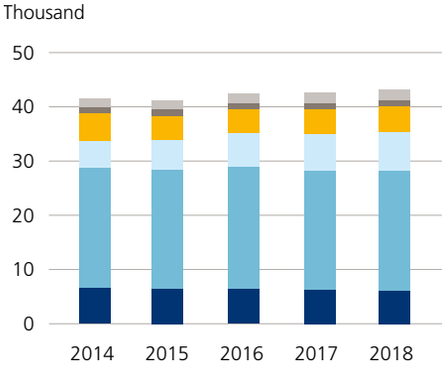


	2014	2015	2016	2017	**2018**	2017–2018
Social performance						Change
Patients reached with Novo Nordisk diabetes products (estimate in millions)	24.4	26.8	28.0	27.7	29.2	5%
Patients reached with Novo Nordisk diabetes products via the Access to Insulin Commitment (estimate in millions)	—	—	—	0.3	0.3	
Donations (DKK million)[4]	84	105	106	103	103	
Employees (total)	41,450[5]	41,122	42,446	42,682	43,202	1%
Employee turnover	9.0%	9.2%	9.7%	11.0%	11.7%	
Gender in management (ratio men:women)	60:40	59:41	59:41	60:40	60:40	
Relevant employees trained in business ethics	98%	98%	99%	99%	99%	
Product recalls	2	2	6	6	3	(50%)
Failed inspections	0	0	0	0	0	
Long-term social targets						Target
Employee engagement[6]	—	—	—	90%	91%	≥ 90
Company reputation (scale 0–100)	79.5	81.1	77.8	79.3	83.3	≥ 80
Environmental performance						Change
Energy consumption (1,000 GJ)	2,556	2,778	2,935	2,922	2,890	(1%)
Water consumption (1,000 m³)	2,959	3,131	3,293	3,276	3,101	(5%)
CO_2 emissions from production sites and product distribution (1,000 tons)	177	150	130	129	127	(2%)
Waste (1,000 tons)	141	159	153	157	142	(10%)
Long-term environmental targets						Target[7]
Share of renewable power for production	73%	78%	78%	79%	77%	100% by 2020
CO_2 emissions from operations and transportation (1,000 tons)	—	—	—	—	269	0 by 2030
Share performance						Change
Basic earnings per share/ADR in DKK[1,8]	10.10	13.56	14.99	15.42	15.96	4%
Diluted earnings per share/ADR in DKK[1,8]	10.07	13.52	14.96	15.39	15.93	4%
Total number of shares (million), 31 December	2,650	2,600	2,550	2,500	2,450	(2%)
Treasury shares (million), 31 December	57	52	46	56	56	0%
Share capital (DKK million)	530	520	510	500	490	(2%)
Dividend per share in DKK[8]	5.00	6.40	7.60	7.85	8.15[9]	4%
Total dividend (DKK million)	12,905	16,230	19,048	19,206	19,547[9]	2%
Share repurchases (DKK million)	14,728	17,229	15,057	16,845	15,567	(8%)
Closing share price (DKK)	260.30	399.90	254.70	334.50	297.90	(11%)

4. Donations to the World Diabetes Foundation and the Novo Nordisk Haemophilia Foundation. **5.** Includes employees of associated company. **6.** New methodology applied in 2017, hence data between 2014–2016 is not available. **7.** A new long-term environmental target was developed in 2018. See page 17. **8.** Share performance-related key figures have been calculated reflecting a trading unit of DKK 0.20. **9.** Total dividend for the year including interim dividend of DKK 3.00 per share, which was paid in August 2018. The remaining DKK 5.15 per share, corresponding to DKK 12,309 million, will be paid subject to approval at the Annual General Meeting.

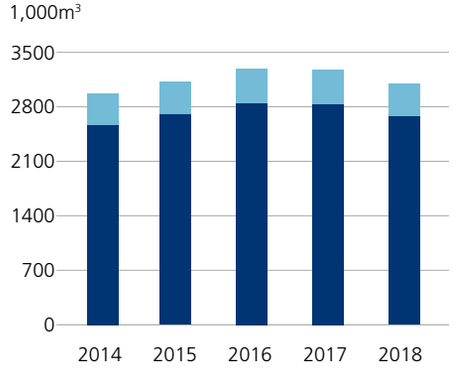
Employees (total)

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



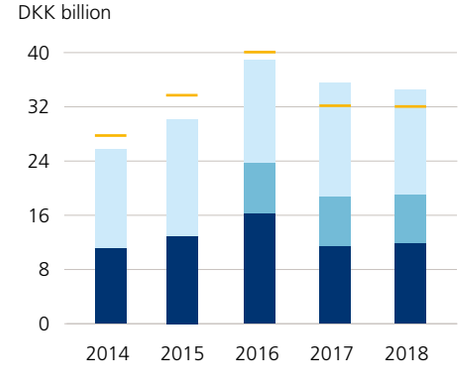
Water consumption

Locations with high water stress or large seasonal variations · Other locations



Cash distribution to shareholders

Share repurchases in the year · Interim dividend for the year · Dividend for prior year · Free cash flow



Pipeline overview

Diabetes

Phase 1

Project	Indication	Description
LAISema NN1535	Type 2 diabetes	Combination of the GLP-1 analogue semaglutide and the long-acting basal insulin analogue LAI287 intended for once-weekly treatment.
OG2023SC NN9023	Type 2 diabetes	A long-acting oral GLP-1 analogue expected to have improved bioavailability and a longer half-life than oral semaglutide.

Phase 2

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.
LAI287 NN1436	Type 1 and 2 diabetes	A long-acting basal insulin analogue intended for once-weekly treatment.

Phase 3

Oral Semaglutide NN9924	Type 2 diabetes	A long-acting oral GLP-1 analogue intended for once-daily oral treatment.

Obesity

Phase 1

Project	Indication	Description
AM833 NN9838	Obesity	A novel amylin analogue intended for once-weekly treatment.
GG-co-agonist 1177 NN9277	Obesity	A novel glucagon analogue in combination with the GLP-1 analogue liraglutide.
PYY 1562 NN9747	Obesity	A novel analogue of the appetite-regulating hormone, PYY, intended for mono- or combination treatment with the GLP-1 analogue semaglutide.
PYY 1875 NN9775	Obesity	A novel analogue of the appetite-regulating hormone, PYY, intended for mono- or combination treatment with the GLP-1 analogue semaglutide.
Tri-agonist 1706 NN9423	Obesity	A novel tri-agonist activating the human GIP, GLP-1 and glucagon receptors intended for once-daily treatment of obesity.

Phase 3

Semaglutide Obesity NN9536	Obesity	A long-acting GLP-1 analogue intended for once-weekly treatment.

Haemophilia

Phase 1

Project	Indication	Description
Eclipse NN7533	Sickle cell disease and beta thalassaemia	An oral combination treatment of decitabine and tetrahydrouridine that increases foetal haemoglobin levels.

Phase 2

Concizumab NN7415	Haemophilia A and B with and without inhibitors	A monoclonal antibody against tissue factor pathway inhibitor intended for subcutaneous prophylaxis.

Filed / regulatory approval

N8-GP NN7088	Haemophilia A	A long-acting recombinant coagulation factor VIII intended for prophylaxis and treatment of breakthrough bleeds.

Growth disorders

Phase 3

Project	Indication	Description
Somapacitan NN8640	Growth disorders	A long-acting human growth hormone intended for once-weekly subcutaneous administration. The project is in phase 3 for adults and in phase 2 for children.

NASH

Phase 2

Project	Indication	Description
Semaglutide NASH NN9931	NASH	A long-acting GLP-1 analogue intended for once-daily treatment.

2019 expected key milestones

Fiasp®	Feedback from regulatory authorities in Japan
Xultophy®	Feedback from regulatory authorities in Japan
Oral Semaglutide	Submission in the US, the EU and Japan
Victoza®	Feedback from regulatory authorities in the US and the EU on paediatric label update based on the Ellipse trial
Concizumab	Phase 3 initiation in haemophilia A and B with and without inhibitors
N8-GP	Feedback from regulatory authorities in the US, the EU and Japan
Somapacitan	Submission in the US, the EU and Japan for adult growth hormone deficiency and phase 3 initiation in children

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. 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 may apply.

Key marketed products in main markets (active ingredients)	US	Germany	China	Japan
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®	2019	2019	Expired	2019
Victoza®	2023[1]	2023[1]	Expired	2022
Tresiba®	2029	2028	2024	2027
Ryzodeg®	2029	2028	2024	2024[2]
Xultophy®	2029	2028	2024	2024[2]
Fiasp®	(2030)[3]	(2030)[3]	(2030)[3]	(2030)[3]
Ozempic®	2031[1]	2031[1]	2026	2031[1]
Obesity:				
Saxenda®	2023[1]	2023[1]	Expired	Expired
Haemophilia, growth disorders and hormone replacement therapy:				
Norditropin® (Norditropin® SimpleXx®)	Expired	Expired	Expired	Expired
NovoSeven®	Expired[4]	Expired[4]	Expired[4]	Expired[4]
NovoEight®	N/A	N/A	N/A	N/A
NovoThirteen® (TRETTEN®)	2021	Expired	N/A	Expired
Vagifem® 10 mcg	2022[5,6]	N/A	N/A	2021[5]
Refixia® (REBINYN®)	2028[1]	2027[1]	2022	2027[1]
Macrilen™	N/A	N/A	N/A	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 beginning October 2016.

Phases

Phase 1 ●○○○
Studies in a small group (usually 10–100) of healthy volunteers, and sometimes patients, to investigate how the body handles, distributes and eliminates new medication and establish the maximum tolerated dose.

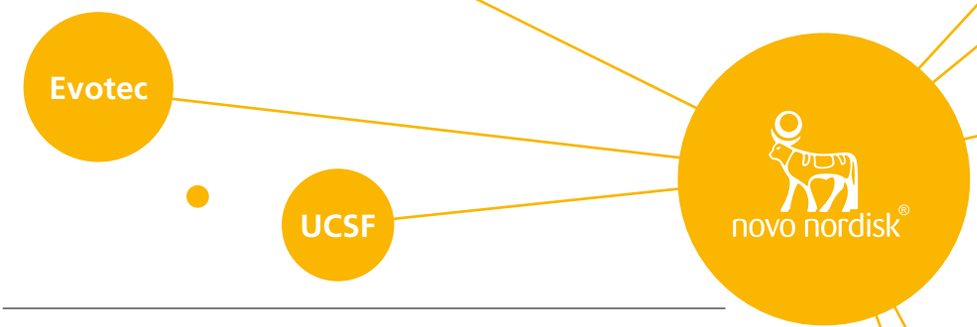
Phase 2 ●●○○
Studies of various dose levels in a larger group of patients (usually 100–1,000) to learn about the new medication's effect on the condition and its side effects. In phase 2, clinical trials are carried out to evaluate efficacy (and safety) in specified patient populations. The outcome of phase 2 trials is clinical proof of concept and the selection of dose for evaluation in phase 3 trials.

Phase 3 ●●●○
Studies in large groups of patients (usually 1,000–3,000) comparing a new medication with a commonly used drug or placebo for both safety and efficacy. Phase 3a covers trials conducted after efficacy is demonstrated and prior to regulatory submission. Phase 3b covers clinical trials completed during and after regulatory submission. In small therapeutic areas such as haemophilia, regulatory guidelines may allow the design of single-arm therapeutic confirmatory trials or trials that compare against historical control, for example, instead of existing treatment or placebo.

Filed/regulatory approval ●●●●
The phase in which a product undergoes regulatory authority review. Products listed under this phase are currently under regulatory review in at least two of the triad markets: the US, the EU and Japan.

Partnering for innovation

The level of innovation required to develop new commercially viable medicines is increasing. To continue delivering life-changing treatments for people living with serious chronic diseases, Novo Nordisk's research and development organisation embraces new ways of working and invites even more partners to join us, so we can increase innovation together.



Novo Nordisk has a successful history of discovering and developing peptide and protein-based medicines and devices for the treatment of diabetes, obesity, haemophilia and growth disorders. However, the increasing level of innovation calls for the company to move beyond its core technology platforms and therapy areas. One of the key levers on this journey is to expand Novo Nordisk's engagement with external scientific partners from academia, biotech and big pharma globally.

"Our history of collaborating with scientific partners goes all the way back to the foundation of this company," explains Mads Krogsgaard Thomsen, executive vice president and chief science officer. "As we move into new areas, we are relying even more on external partners who complement our own strong set of capabilities and can add new skills. In 2018, we have significantly boosted our external innovation, but we are looking for even more partners."

Some of the new partnerships announced in 2018 open the door to new therapy areas adjacent to the Novo Nordisk core areas, such as diabetic kidney disease via the collaboration with Epigen. Others add complementary technological skills in core therapy areas or contribute to the newly established technology platforms of stem cell therapy and oral peptide delivery.

Boosting technological innovation

"Partnerships have already helped us to take innovation further, faster," Lars Fogh Iversen, senior vice president and head of Global Research Technologies, explains. "We have a world-class protein technology platform through which we have delivered injectable medicines for nearly a century. But we know that the majority of diabetes patients prefer taking a tablet.[4] To address this unmet need, it is our vision to be the leading oral peptide therapeutics company. One successful example of executing on this vision is when we combined our protein expertise with Emisphere's oral drug delivery technology to formulate semaglutide in a tablet." (See p 24.)

Another foundation for Novo Nordisk's oral delivery platform is the collaboration with Professor Robert S. Langer from the Massachusetts Institute of Technology (MIT), renowned for his research and discoveries within the field of drug delivery systems, among others. Together with the MIT laboratory, Novo Nordisk device engineers have invented a small pill-sized device for oral delivery of various peptides and proteins.[5]

A remaining treatment barrier in diabetes is the risk of low blood glucose levels (hypoglycaemia) associated with insulin treatment. Ziylo, a UK based spin-out from the University of Bristol, has developed a highly promising glucose sensor. In 2018, Novo Nordisk acquired Ziylo to combine the glucose sensor with Novo Nordisk's protein technology expertise and deep biological insulin understanding, with the aim of developing a glucose-responsive insulin with low risk of hypoglycaemia.

Across therapy areas, Novo Nordisk is embracing technological innovation and seeking solutions that originate outside the company. An example is Novo Nordisk's partnership with Evotec to boost small-molecule discovery and development in diabetes and obesity. Internally in R&D, technological innovation is also being boosted as Novo Nordisk is implementing digitalisation and automation in many processes across the R&D value chain. "This is not another IT project. It's the new way

Emisphere

Lund University

Kallyope

Ziylo

Epigen

of working," says Lars Fogh Iversen.

Stem cells exemplify new ways of working

After engaging in stem cell research for two decades, Novo Nordisk has established a technology platform based on the ability of stem cells to transform and become any type of cell in the human body. The technology platform will be run by one of the newly established Transformational Research Units (TRU), which will operate in much the same way as a biotech research unit. "The TRU is one of the new ways of working in R&D to boost innovation," says Mads Krogsgaard Thomsen. "The idea is for small groups of researchers to work in a more autonomous and independent way, focusing on specialised areas outside our traditional research areas." The stem cell TRU will focus on developing stem cell-based therapies for serious chronic diseases. For instance, in type 1 diabetes – which is caused by the loss of the insulin-producing beta cells – stem cells can be transformed into new beta cells that can replace the lost cells and thus provide a cure. In 2018, Novo Nordisk announced several partnerships to expand the efforts in stem cell-based therapies to new disease areas such as Parkinson's disease and chronic heart failure. To secure production capacity suitable for future clinical testing of stem cell-based therapies, Novo Nordisk has partnered with the University of California, San Francisco (UCSF) to develop high-quality stem cell lines and has licensed a nearby manufacturing site in Fremont, California.

"We are striving to progress our stem cell-based treatment for type 1 diabetes into clinical testing in the near future and to follow up with treatments for other serious chronic diseases, so we continue offering life-changing treatments to even more patients in the future," says Jacob Sten Petersen, corporate vice president and head of Stem Cell R&D.

"We have had the pleasure of receiving grants and working with many companies at our lab. Novo Nordisk has been one of the very best companies to work with. I feel they've been tremendous collaborators; our students and staff have loved working with them; and enormous scientific progress has been made that I hope will benefit many patients someday."

ROBERT S. LANGER
Professor from the Massachusetts Institute of Technology (MIT), shares his view on partnering with Novo Nordisk.

Photo: Courtesy of the Science History Institute.

Accessing external innovation

With the increased focus on external innovation reaching across Novo Nordisk's therapy areas and technology platforms, the R&D organisation is expanding its global presence. Marcus Schindler, senior vice president and head of Global Drug Discovery, explains:

"To access external innovation, it is of utmost importance that we are present at the innovation hubs around the world and that we proactively reach out to potential external scientific collaborators." In 2018, new Research & Development facilities were inaugurated in the historic university campus in Oxford, UK, and a new office was opened in the scientific hotspot of Boston, US.

"This is the future of Novo Nordisk drug development," adds Markus Schindler. "To collaborate with partners to improve the lives of patients together."

Kallyope

Novel peptides for obesity and diabetes treatment

In a research collaboration, Novo Nordisk is combining its expertise in disease biology understanding and peptide production with Kallyope's innovative technology platform to explore the gut-brain axis and develop novel peptides for obesity and diabetes treatment.

Evotec

Small molecules

Via a strategic alliance, Novo Nordisk provides extensive disease know-how and Evotec applies its research and early development platforms to discover and develop small-molecules targeting diabetes, obesity and associated comorbidities.

Lund University

Stem cells for Parkinson's disease

Novo Nordisk is collaborating with a world leading group within stem cells and Parkinson's disease at Lund University and with the Swedish biotech company BioLamina to develop stem cell-derived treatment for Parkinson's disease.

The future in a tablet

While many people are accustomed to taking a daily tablet, for example as a vitamin supplement, many are reluctant to inject themselves. Nevertheless, the vast majority of patients on Novo Nordisk diabetes products rely on daily injections to manage their disease. For some of them, this is about to change.

Novo Nordisk's portfolio of diabetes medicines is primarily based on two of the biological blood glucose regulators: insulin and GLP-1. Both are small proteins, known as peptides, which – if taken orally – would be categorised by the human body as food and broken down by digestive enzymes in the gastrointestinal tract before having any effect. Consequently, injections are currently needed for the administration of biological medicines such as peptides. With most type 2 diabetes patients preferring a daily tablet over an injection,[6] it has become Novo Nordisk's ambition to find a way to deliver antidiabetic peptides in the form of a tablet.

Scientific breakthrough
The challenges involved in developing peptides in a tablet include overcoming the stomach's enzymatic breakdown, increasing absorption across the stomach wall and minimising food-drug interactions. It took a suitable GLP-1 molecule, semaglutide, and more than 10 years of hard work in Novo Nordisk's laboratories, pilot plants and global medical clinics – along with screening of more than 100 external innovators of oral delivery techniques – to make the dream of developing the world's first antidiabetic peptide in a tablet come true. "With oral semaglutide we are doing what was once considered impossible," explains Mads Krogsgaard Thomsen, Novo Nordisk's chief science officer and executive vice president. "We are harnessing the power of a biological medicine in a once-daily tablet."

Oral semaglutide is the result of Novo Nordisk's strong protein expertise combined with the oral delivery technology 'SNAC' from the US-based external partner, Emisphere. Semaglutide is a once-weekly injectable GLP-1 analogue, which was launched under the brand name Ozempic® in 2018. SNAC is a carrier molecule that protects peptides against enzymatic breakdown and enhances the absorption across the stomach wall. Oral semaglutide is a co-formulation of semaglutide and SNAC – in a once-daily GLP-1 tablet (See p 22).

The largest ever investment
In 2015, oral semaglutide proved its worth when clinical proof of concept was achieved in a phase 2 trial involving more than 600 people living with type 2 diabetes. In fact, the results were so encouraging that Novo Nordisk's executive management made a bold decision.

"Based on the phase 2 results, we decided to make the greatest single investment in manufacturing in Novo Nordisk's history," says Henrik Wulff, executive vice president of Product Supply. Although the SNAC component of oral semaglutide enhances the absorption, the bio-availability – that is, the proportion of active drug which enters the blood – is considerably lower with oral administration versus injections. Consequently, larger amounts of the active pharmaceutical ingredient (API) are needed. And that calls for large-scale production.

"We are investing in a new API production facility in Clayton, North Carolina," says Henrik Wulff, "and a tablet factory in Måløv, Denmark, to produce semaglutide tablets."

Encouraging late-stage clinical results
Following the encouraging results in the phase 2 trial, a large phase 3a programme was initiated. During 2018, the PIONEER programme concluded its 10 trials, testing oral semaglutide against both oral and injectable diabetes medications in more than 9,000 people living with type 2 diabetes.

"In the PIONEER programme, we have tested oral semaglutide from 'A to Z'. From newly diagnosed to people who have been living with type 2 diabetes for many years, some

10 trials testing oral semaglutide in >9,000 people living with type 2 diabetes

*dulaglutide only tested in Japan.

Key results
(see article text for further details)

- Blood sugar and weight benefits against the oral antidiabetics empagliflozin and sitagliptin
- Blood sugar and weight benefits against the injectable GLP-1s liraglutide and dulaglutide*
- Cardiovascular safety
- Well-tolerated with a safety profile consistent with GLP-1-based therapy

of whom even live with serious comorbidities related to the heart or kidneys," explains Mads Krogsgaard Thomsen. "We have tested oral semaglutide against some of the leading oral antidiabetics and injectable GLP-1s on the market – and the results are truly exciting!"

Overall, the higher doses of oral semaglutide significantly improved blood sugar control and reduced body weight when compared to some of the leading oral glucose lowering medicines, empagliflozin (SGLT2i) and sitagliptin (DPP4i).[7] Compared to the two leading injectable GLP-1s on the market, liraglutide and dulaglutide, the highest dose of oral semaglutide resulted in significantly improved blood sugar control and reduced body weight. In people with a long history of type 2 diabetes who were on insulin treatment, the addition of oral semaglutide also improved blood sugar control and reduced their body weight and insulin dose with a comparable risk of hypoglycaemia to those treated with insulin only. For people living with type 2 diabetes, renal impairment and cardiovascular diseases are common comorbidities.[8] Oral semaglutide was proven to be efficacious and to have a solid safety profile in people with moderate renal impairment. Finally, in a study with more than 3,000 people living with type 2 diabetes and with high risk of cardiovascular disease, treatment with oral semaglutide did not increase the risk of major adverse cardiovascular events. In supportive secondary endpoints, the risk of death was significantly reduced.

Entering a new market segment
With the phase 3a results in place, Novo Nordisk is heading towards submission for product registration of oral semaglutide in the US and in Europe in the first half of 2019 – the fastest Novo Nordisk submission ever.

"From a commercial perspective, entering the oral diabetes market is a big opportunity for Novo Nordisk. But entering a new segment also requires new ways of thinking and working."

CAMILLA SYLVEST
executive vice president,
Commercial Strategy & Corporate Affairs

Camilla Sylvest, executive vice president of Commercial Strategy & Corporate Affairs, is just as excited as Mads Krogsgaard Thomsen about the opportunity to launch semaglutide in a tablet. "We will be offering people living with type 2 diabetes what we believe is the world's most convenient GLP-1 treatment." Today, two out of three people with type 2 diabetes are being treated with oral diabetes medication rather than injectable medication.[9]

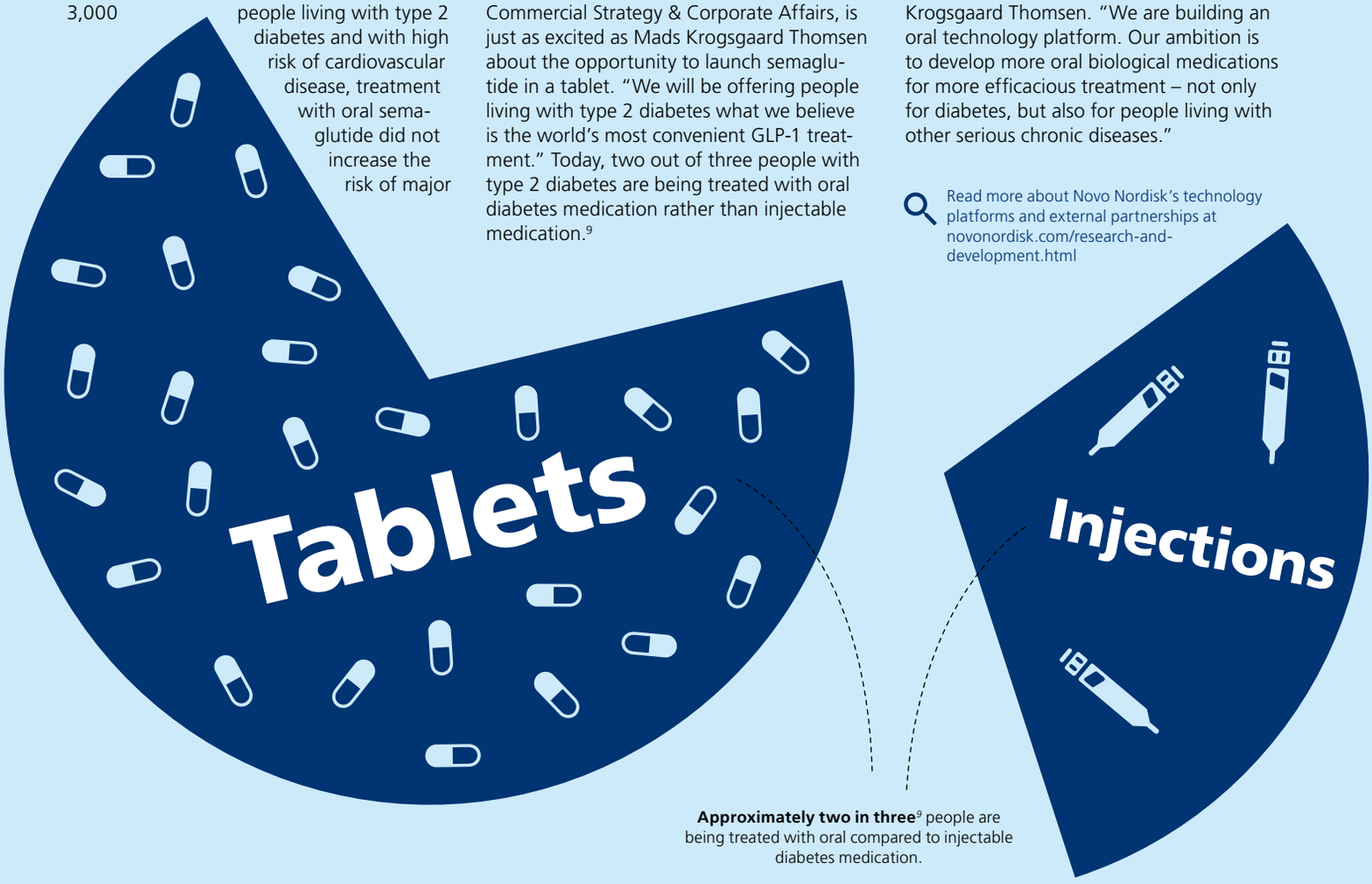
"From a commercial perspective, entering the oral diabetes market is a big opportunity for Novo Nordisk," says Camilla Sylvest. "But entering a new segment also requires new ways of thinking and working."

Administering injectable antidiabetics requires education in handling of the injection device. For this reason, Novo Nordisk's current diabetes products are typically prescribed by endocrinologists and primary care practitioners. However, as most people are used to taking a tablet, more primary care practitioners are likely to prescribe oral semaglutide. "Launching the world's first antidiabetic peptide in a tablet to primary care practitioners is different from what we have done in the past and will require increased engagement with healthcare professionals, payers and patients," says Camilla Sylvest.

The future in a tablet
Across Novo Nordisk, significant efforts are invested in bringing the world's first peptide-based diabetes medicine in tablet form to market. But Novo Nordisk's journey with biologics in tablets does not end with oral semaglutide.

"This is just the beginning," promises Mads Krogsgaard Thomsen. "We are building an oral technology platform. Our ambition is to develop more oral biological medications for more efficacious treatment – not only for diabetes, but also for people living with other serious chronic diseases."

Read more about Novo Nordisk's technology platforms and external partnerships at novonordisk.com/research-and-development.html



Approximately two in three[9] people are being treated with oral compared to injectable diabetes medication.

Committed to making obesity a healthcare priority

Around 13% of the world's adult population live with obesity.[10] This translates into 650 million people. And the prevalence is increasing. Yet less than 2% of them – 11 million – are currently receiving pharmacological therapy for this disease.[11] Novo Nordisk is determined to tackle this issue and has increased its commitment and investments to make obesity a healthcare priority and provide innovative treatment solutions for people with obesity.

The figures speak volumes. The global increase in the prevalence of obesity – defined as having a body mass index (BMI) of 30 or above[12] – is a public health issue with huge cost implications for healthcare systems.[13] What these figures do not reflect, however, is the personal journey that so many people living with excess weight and obesity are on. Most people with obesity believe it is their own responsibility to lose weight. They try out different diets, and they regularly work out at the gym. It's a long and lonely battle and, despite brave efforts, many are forced to admit defeat.

Obesity is not a personal choice. There are a number of reasons why people develop obesity. The disease is influenced by many factors, including physiology, genetics, psychology, and also the environment in which you live. But once you have obesity, it is a complex chronic disease that requires lifelong management: the right diet, exercise and for some, also pharmacological treatment. Science shows that the body responds to weight loss with an increased feeling of hunger and lower metabolic rates. Obesity is associated with many complications, such as type 2 diabetes, cancer and cardiovascular disease. On top of that, there is the stigma that people with obesity face.

Despite the magnitude of the problem – for the individual as well as society – there is little help available. Not only in terms of treatment options, but also when it comes to care and compassion. Novo Nordisk is committed to changing this. The goal is to have obesity universally recognised and treated as a disease, and for people with obesity to be treated with dignity and respect. Novo Nordisk has made a long-term commitment and a plan in pursuit of this goal, which was reaffirmed with the launch of the Changing Obesity™ platform in early 2019. It will include activities and partnerships focused on three priorities: prevention of obesity, recognition of obesity as a disease, and ensuring that those already living with the disease have access to comprehensive, science-based care. One such example is the partnership platform, Cities Changing Diabetes™, which addresses the root causes of diabetes, of which obesity is the single largest factor. This initiative currently involves 19 cities on five continents in finding and sharing solutions to advance healthy living in cities.

Stepping up to the challenge
"The commitment marks a change. It sends a strong and confident message that obesity is now an area of priority for Novo Nordisk, and that our raised ambition also follows additional investments," says Camilla Sylvest, executive vice president, Commercial Strategy and Corporate Affairs. The plan lays out two missions to be accomplished, and investments to make them happen.

Making obesity a healthcare priority
The first mission is to make obesity a healthcare priority in countries around the world and ensure that care is delivered in the same way as care for other serious chronic diseases. This will require a mindset-shift in society.

"People with obesity rarely seek or receive care from the healthcare system. The consequence is often poor health and reduced quality of life," explains Morten Lammert, corporate vice president, Obesity Commercial Unit.

Progress is happening, though. More healthcare professionals are being certified as obesity specialists; medical education in obesity management is on the rise; and the view of obesity is changing. Moreover, there are indications that the traditional narrative – so often projected by the media – that overweight or obesity is 'your own fault', is slowly, but surely, being contested.

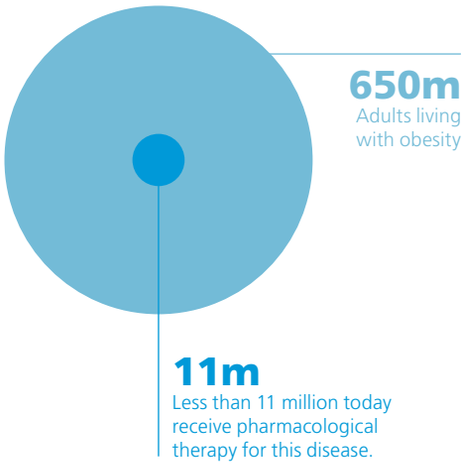
"The ecosystem of obesity healthcare has to improve" says Morten Lammert. "We need to help build both capabilities and capacity,

The complexity of weight management

The perception that weight loss is easy, if only you have the willpower, is incorrect. Energy balance is influenced by a number of factors, including physiology, genetics, psychology and the person's environment. Adding to the complexity is the body's own response to weight loss – increased feelings of hunger, increased desire to eat and lowered metabolic rate. Put simply, the body works hard to regain weight loss.

Weight loss

↓ Calories ↑ Activity



secure funding for obesity care, and tackle obesity stigma in society. People with obesity deserve this." Among Novo Nordisk's global initiatives are contributions to the education of healthcare professionals, patient support programmes, strengthening patient communities and raising awareness for the need to establish dedicated clinics.

Boosting research efforts
The second mission is to continue to develop a portfolio of superior treatment solutions.

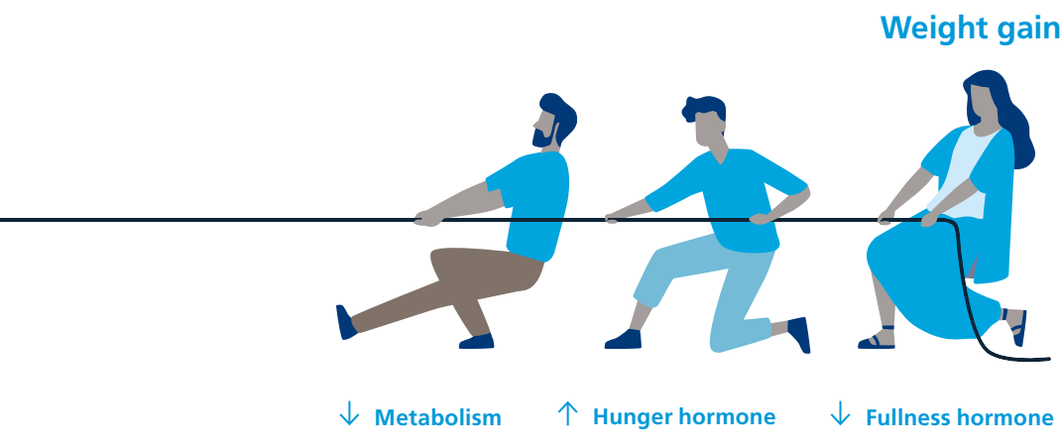
Novo Nordisk's first obesity product, Saxenda® was launched in the US in 2015 and is indicated for people with a BMI of 27 or more in the presence of at least one weight-related comorbidity or a BMI of 30 or above. At the end of 2018, Saxenda® is available in 41 countries. However, to better meet the weight-loss goals of patients as well as healthcare professionals, even better treatment options are needed.

Novo Nordisk already has a diverse anti-obesity pipeline with injectable semaglutide being the frontrunner as a treatment for obesity. The effects of semaglutide on weight reduction are currently being investigated in STEP, a phase 3 clinical trial programme. The company recently initiated a cardiovascular outcomes trial, SELECT, to evaluate the cardiovascular benefits of semaglutide 2.4 mg in a population of 17,500 people with established cardiovascular disease and overweight or obesity. This study is the largest ever clinical trial within the field of obesity and the largest clinical trial conducted by Novo Nordisk.

Novo Nordisk also has multiple phase 1 projects investigating new treatment options, such as molecules that can target appetite regulation and energy expenditure, with the aim of achieving a better balance between the two. The aspiration is to develop medicines that can achieve sustained weight loss of at least 20%, which is close to both physicians' and patients' expected weight loss goals.

A head start
Morten Lammert is not daunted by the prospect of competition. With less than 2% of people with obesity currently receiving pharmacological treatment, he welcomes efforts from other pharmaceutical companies. "We have a huge task ahead of us, and the more interest this space attracts, the more people with obesity we will be able to help," he argues.

Thanks to Saxenda®, Novo Nordisk already has a head start and is also in a unique position to create partnerships and engage with patient communities to learn with them. "We have learned a lot along the way," says Morten Lammert. "Our entry into this therapy area has given us unique insights and made us confident that we can bring our capabilities into play and mobilise what will be needed to ensure systemic changes in society. Only this way can we help people with obesity and make obesity care a sustainable business opportunity for Novo Nordisk."



Vicki Mooney is living with obesity and is a vocal advocate for tackling the stigma

Vicki Mooney speaks passionately about the importance of changing the messaging from 'losing overweight' to 'becoming healthy'. And she knows what she is talking about.

She has been fighting overweight since childhood, only to find that her weight kept going up, while her self-esteem waned, especially because of the stigma she faced about her weight. At age 27, and a mother of two, she struggled to climb stairs, and felt depressed about her life. She gathered the courage to see her doctor, who referred her for gastric bypass surgery.

"Within 14 months after the surgery, I had halved my weight, became pregnant again, and had a perfect pregnancy. But I never once realised that the operation wasn't the silver bullet I had hoped. I didn't realise an entire lifestyle change was required, not just for me but for my entire family. Nor did I then know the psychological effects," she says.

Today, at the age of 40, she is a strong, self-confident woman who has dedicated her professional life to promoting body confidence and a healthier lifestyle to women. She is still struggling to maintain her weight loss, but has come to terms with the fact that she is indeed living with obesity.

Vicki Mooney is a member of Novo Nordisk's DEEP network (see p 37) and is actively involved in patient advocacy organisations such as the European Coalition for People living with Obesity.

Read more about Vicki Mooney at novonordisk.com/patients/DEEP.html

In pursuit of sustainable development

HASSAN ALUBLED
Hassan has type 2 diabetes and lives in Lebanon

The Sustainable Development Goals (SDGs), adopted in 2015 by the United Nations, highlight the link between health and wealth, and set a new course to direct and track progress towards 'the world we want'. For Novo Nordisk, these goals present an opportunity to step up its contributions to sustainability, providing better healthcare for more people and delivering on an aspiration of zero environmental impact by 2030.

Social and economic development in its current form comes at a cost. Growing consumption, globalisation and urbanisation are putting pressure on nature's resources and accelerating climate change, and jeopardise human health and well-being. Achieving sustainable development – a development that meets the needs of the present, without compromising the ability of future generations to meet their own needs – is a global priority. The SDGs have become the common reference for stepping up efforts to address these global challenges, including for businesses, partly because they are expected to, and partly because more sustainable development is also in their own interest.

"We believe that a healthy environment, society and economy are fundamental to long-term business success, and we will play our part to deliver on the long-term Sustainable Development Goals," says Camilla Sylvest, executive vice president, Commercial Strategy & Corporate Affairs. "When governments, civil society and businesses work together we all win."

As an example, the goal to 'ensure healthy lives and promote well-being for all, of all ages' has specific targets that fit hand-in-glove with Novo Nordisk's efforts to bring innovative products to patients. A specific target under this goal is to reduce premature mortality due to non-communicable diseases, including diabetes, by one third. Combined with the target of universal health coverage, it gives governments an incentive to work with Novo Nordisk and civil society partners to find more effective solutions to the daunting challenges associated with the epidemic rise in the prevalence of diabetes worldwide.

Accelerating access to care

Each year, 15 million people between the ages of 30 and 69 die prematurely from non-communicable diseases, including diabetes.[14] More than 85% of these premature deaths occur in low- and middle-income countries. Without good health, sustainable development in many of these countries remains a dream.

Through Novo Nordisk's Access to Care strategy, the company works to remove barriers to effective diabetes care. Along with a guarantee to make low-priced human insulin available in the world's least developed and low-income countries – and as of 2019 also to selected middle-income countries and humanitarian relief organisations, a number of specific initiatives aim to expand access to diabetes care in the world's poorest countries. However, to achieve scale and maximise impact, there is a need to adopt a more holistic approach – one that relies on partnerships.

In 2018, the Defeat-NCD Partnership, hosted by the United Nations Office for Project Services (UNOPS), was launched. Novo Nordisk is a founding partner together with the Danish Government. This initiative was taken to ensure a more consistent supply of low-priced insulin. For Novo Nordisk, this partnership is a critical next step on the road to improving access to diabetes care in low-resource countries where inefficient procurement and supply chains often result in high prices for patients due to mark-ups and shortage of essential medicines.

Leave no one behind

A key principle behind the SDGs is a promise to 'leave no one behind'. Currently, more than 68 million people have been displaced by conflict or persecution – the largest number since World War II. Not always visible or recognised are the four million people living with diabetes who have been forced to flee their homes due to man-made or natural disasters. The risk that their chronic disease will worsen is two to three[15] times as high when they cannot get continuous treatment and access to care. And this leads to complications which could normally be avoided.

It was with these vulnerable people in mind that Novo Nordisk entered into partnership with the International Committee of the Red Cross, the Danish Red Cross and the London School of Hygiene and Tropical Medicines. In partnership with these organisations, the company is working to improve efficiency in the provision of insulin to people in humanitarian crises and to explore ways of improving care for people with diabetes and other serious chronic diseases. In addition, Novo Nordisk is contributing supplies of low-cost human insulin to Red Cross and Red Crescent operations all over the world.[16] So far, the largest dispatches of insulin have been made to Syria, Palestine and Yemen.

More than medicine

While provision of care for serious chronic diseases is the number one priority for Novo Nordisk, there is more to do when it comes to contributing to global sustainable development.

As a corporate citizen, Novo Nordisk is committed to meeting the expectations of society and to 'do no harm'. This includes another imperative, namely responsible production and consumption, which is also singled out as a priority in the SDGs.

Over the years, Novo Nordisk has put a lot of effort into managing its production efficiently and pursuing goals to reduce the use of water and energy. Novo Nordisk was among the first manufacturers in the world to commit to a conversion to renewable energy. To minimise the environmental impact of its activities even further, a new long-term target has been set: by 2030, there will be zero emissions from Novo Nordisk's operations, including transportation.

"It has taken a dedicated effort and unwavering focus on the targets to get to where we are today," says Henrik Wulff, executive vice president, Product Supply. "The key to success is innovation. We've been able to find smart solutions that benefit our business and minimise the environmental footprint of our production."

From less to zero

The mantra of 'doing more with less' will not be enough to create a healthy and sustainable environment for the future. This is why Novo Nordisk has set a new ambition with its 'Circular for Zero' strategy: to have zero environmental impact by embracing a circular mindset. 'Circular' means designing and producing products that can be recycled and reused, and reshaping business practices to minimise consumption and eliminate waste by turning it into new resources.

The circular approach is not new to Novo Nordisk. Since 1972, the company has been a part of the world's first industrial symbiosis with a circular approach to production at its manufacturing site in Kalundborg, Denmark. For almost 50 years, the waste from one company has been used as a resource at another, benefiting both the environment and the economy.

Going forward, the ambition is to embed the circular approach across the entire value chain, from Novo Nordisk's own operations to those of its suppliers, letting this mindset guide the way towards the ultimate ambition: zero environmental impact by 2030.

Read more at
novonordisk.com/about-novo-nordisk/changing-diabetes.html
novonordisk.com/sustainable-business/performance-on-tbl/access-to-care.html
novonordisk.com/sustainable-business/performance-on-tbl/environmental-responsibility.html
citieschangingdiabetes.com

Novo Nordisk and the Sustainable Development Goals

The Sustainable Development Goals, adopted by world leaders in 2015, set the direction for what it takes to achieve a more sustainable future, with 2030 as the defined target date. They address global challenges and set specific goals to end poverty, protect the planet and ensure prosperity for all. Governments are expected to make national plans to reach these goals, while the business community and civil society are encouraged to do their part.

An assessment of Novo Nordisk's activities shows that the company's biggest positive contribution is to help achieve health and well-being for all (goal 3) and be an example of sustainable management and efficient use of nature's resources (goal 12). Working with a mindset of zero negative impact on people, communities and the environment, Novo Nordisk has created a baseline for its impacts against all the goals, which will inform the company's actions in support of the SDGs.

Read more at un.org/sustainabledevelopment/sustainable-development-goals/

Novo Nordisk's Operations

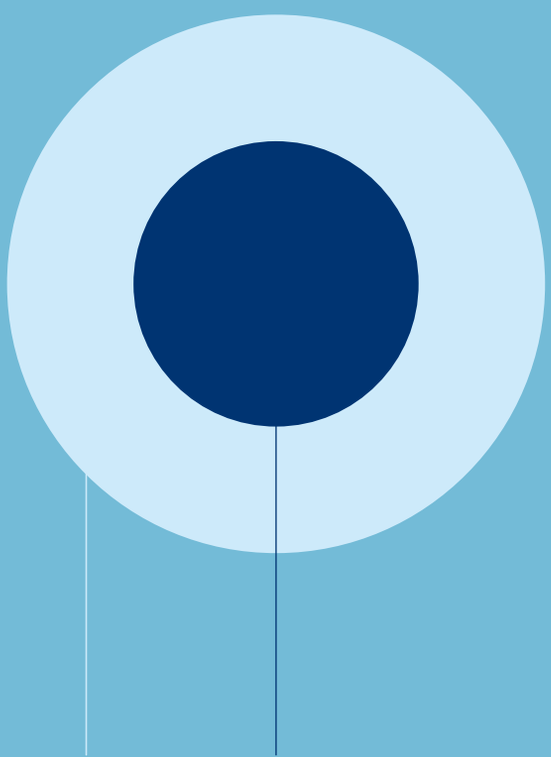
Novo Nordisk operates in two main commercial units, North America Operations (including the US and Canada) and International Operations (IO), which covers five regions across the world. As the following articles show (US pp 32–34, IO pp 35–37) the patient populations and market conditions vary on multiple dimensions, but they do have one thing in common: the unmet needs are significant – and there is a large gap between the number of people living with diabetes and the ones that receive some form of treatment. Furthermore, the numbers demonstrate that diabetes is a challenge everywhere: in low, middle and high income countries.

Region Africa, Asia, Middle East and Oceania

187m
Adults with diabetes

105m
Adults with undiagnosed diabetes

Region China



117m
Adults with diabetes

62m
Adults with undiagnosed diabetes

Adults with diabetes

Adults with undiagnosed diabetes

* Data based on IDF Atlas 2017 ed.

Region Latin America

39m Adults with diabetes

15m Adults with undiagnosed diabetes

Region Europe

38m Adults with diabetes

13m Adults with undiagnosed diabetes

Region Japan & Korea

10m Adults with diabetes

4m Adults with undiagnosed diabetes

North America Operations

32m Adults with diabetes

12m Adults with undiagnosed diabetes

Diabetes in 2045

When looking into the future the unmet needs in diabetes prevention, diagnosis and treatment will continue to exist, according to estimates. The Novo Nordisk Global Diabetes Projection Model estimates that by 2045, 736 million adults will have diabetes with associated costs exceeding USD 1 trillion.[17] As low and middle income countries experience economic development, it is expected that this new prosperity will be accompanied by a significant growth in the number of people living with diabetes – undiagnosed, untreated or treated. This may put a significant strain on health systems, drive up healthcare costs, and impact the economy negatively through reduced productivity. In summary, these negative effects may compromise the welfare gains achieved by the economic development that is expected over the coming decades.

Innovating for access in a challenging US market

Around half of Novo Nordisk's global sales are generated in the US. For this reason, the dynamics in this market are closely monitored. How will the business develop? What are the risks and realities to watch out for? And how can Novo Nordisk play its part to ensure that patients have access to medical treatment and care?

The prevalence of diabetes continues to rise in the US. Last year, the US Centres for Disease Control and Prevention announced that 9.4% of the American population – 30.3 million people* – have diabetes. Of those, 23.1 million are diagnosed.[18]

These dramatic figures underscore the need to ensure that more people with diabetes are diagnosed and treated, and achieve their treatment targets.

For Novo Nordisk, this situation presents an opportunity to expand access to the company's innovative medicines. But it also brings challenges. The US healthcare market is highly competitive, especially for insulin treatment, where pricing pressures to maintain preferred status on drug reimbursement lists have caused a decline in net pricing.

With new medicines available in the US, and more in the development pipeline (see p 20), Novo Nordisk is well-positioned to provide new and innovative treatment options for people living with diabetes and obesity. In order to succeed, a new go-to-market approach is required.

Making access possible with Ozempic®

Ozempic®, Novo Nordisk's new once-weekly GLP-1 for people with type 2 diabetes, was launched in the US in January 2018.

"Our new regional focus gives us flexibility to adjust tactics and investments, so that patients can benefit from what we believe is a world-class medicine."

DOUG LANGA
executive vice president
North America Operations

Ozempic® was entering the market at a time when there were already several medicines available in the GLP-1 class, including Novo Nordisk's highly successful daily GLP-1, Victoza®. With many existing competitors, there was a risk that not all health plans would reimburse Ozempic®, and consequently patients would have limited access to this once-weekly treatment. If that were to happen, it might cause a lasting negative perception among patients and healthcare professionals.

Novo Nordisk had to prepare for this new business environment and the commercial organisation adjusted its go-to-market approach.

A new operating model, initiated in 2017, focuses on growing the GLP-1 business, establishing insulin leadership and developing the obesity business. It works by bringing together three principles: Integrate. Localise. Focus. The Ozempic® launch team applied these principles by working closely with field and home office teams to develop an approach that made space for the company's two complementary GLP-1 products, and created a targeted launch plan for Ozempic® based on key insights from the field, geographic segmentation and a careful analysis of which medicines were reimbursed by health plans. This localised planning improved sales representatives' ability to identify potential restrictions to patient access and have better conversations with healthcare providers about clinical benefits.

"This approach gave us a better understanding of how broad or limited access actually was. That was essential because access as it used to be doesn't exist. More so than a typical launch, this approach allowed us to focus our efforts," explains Doug Langa, executive vice president, North America Operations.

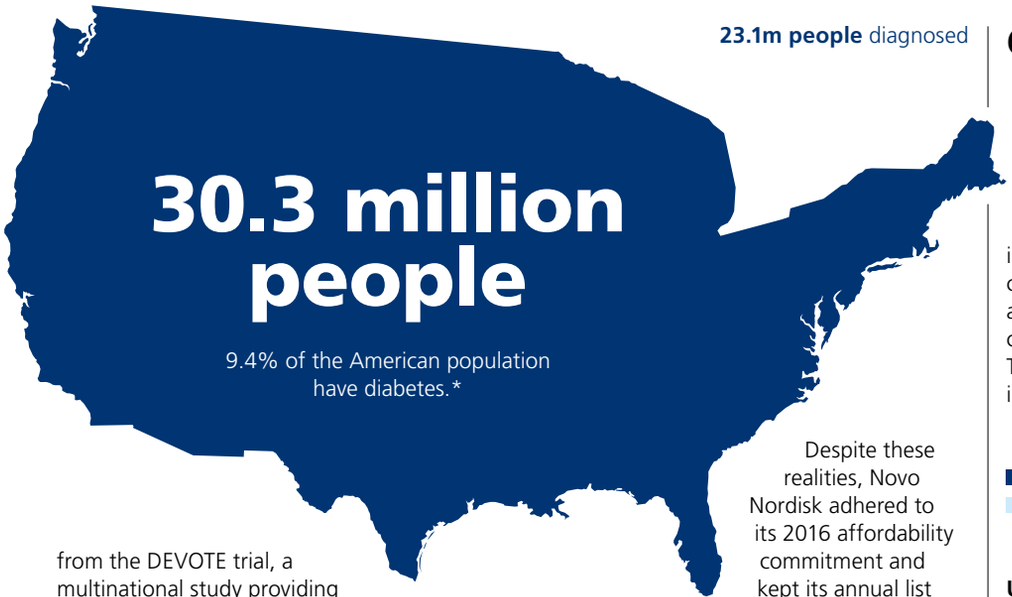
"Our new regional focus gives us flexibility to adjust tactics and investments, so that patients can benefit from what we believe is a world-class medicine. After all, we operate in market settings that are as diverse as they are geographically distant from one another."

The launch team sought real-time feedback from selected patients through a digital platform that provided tips, videos and weekly reminders to help them use Ozempic® and enabled healthcare providers to learn more about how the medication works for their patients.

By the end of 2018, Ozempic® had achieved 7% share of the GLP-1 market, and Novo Nordisk's total value share in the GLP-1 market is 45%.

Insulin: a challenging market

In the highly competitive insulin market, Novo Nordisk successfully managed to grow its market share by increasing healthcare providers' awareness of clinical benefits beyond glycaemic control. Based on results



23.1m people diagnosed

from the DEVOTE trial, a multinational study providing clinical data on hypoglycaemia and cardiovascular outcomes, Tresiba® obtained a new label update and continued its favourable positioning on drug formularies. As a result, Tresiba® gained market share in 2018.

Affordability and sustainable healthcare
There is broad agreement that the current US healthcare system is not sustainable, but little progress has been made in tackling the systemic issues that are causing the inefficiencies. People living with a chronic disease like diabetes, and for whom insulin is an essential medicine, may have insufficient or no commercial insurance coverage for their medicines. They may therefore not qualify to be included in one of the country's public healthcare programmes.

Political pressure remains on the pharmaceutical industry. Actions by the US Congress require higher financial contribution by the industry to Medicare Part D to offset drug costs for patients who temporarily lose prescription drug insurance coverage – also known as 'the donut hole'. Throughout 2018, the nation saw an increasing number of Americans using high deductible health plans or co-insurance, both of which can result in higher out-of-pocket costs for patients including on prescription drugs. This in turn has increased pressure on the pharmaceutical industry, including legislative changes that require pharmaceutical companies to substantially increase their contributions to the Medicare Part D program. Novo Nordisk's business in the US has been affected by these and other competitive market forces, which made it necessary to implement some organisational changes to facilitate sustainable growth.

Despite these realities, Novo Nordisk adhered to its 2016 affordability commitment and kept its annual list price increases below 10%. Rebates and discounts given to private and public payers totalled 68% of gross US sales across the portfolio – which represents more than a 13% increase compared to 64% in 2017 (see p 66).

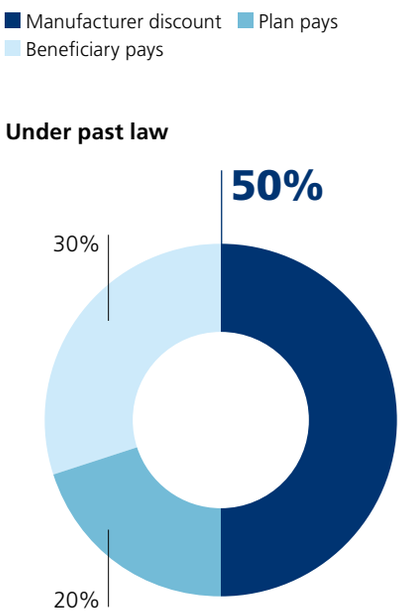
Novo Nordisk helps provide options for people who cannot afford to pay for their medicines, including programmes through which patients can apply for financial support to assist with the cost of Novo Nordisk medicines. The company also makes its human insulin available through some pharmacy chains at USD 25 per vial. In addition, Novolin 70/30 in a FlexPen was added to Walmart's private label, ReliOn, which also already offers human insulin in a vial at USD 25, corresponding to daily treatment cost of a few dollars.

Another innovative approach is value-based contracts – i.e. agreements that give purchasing leverage based on the clinical performance of a contracted medicine. Novo Nordisk entered into value-based contracts with a health plan Select Health and a pharmacy benefits manager Prime Therapeutics. Both contracts track metrics designed to measure and understand how patients use Victoza® in an effort to balance the quality of healthcare with cost savings. In another collaboration, Novo Nordisk is exploring how to improve health outcomes for 10,000 patients through behaviour-based adherence strategies with Sempre Health. A pilot programme with a health insurer is anticipated to launch in early 2019.

Focus on obesity treatment
It remains a top priority for Novo Nordisk to change the way people with obesity →

Closing the Part D Donut Hole under new US law

A recent change in US law requires financial contribution by the pharmaceutical industry to Medicare Part D to offset drug costs for patients who do not have insurance coverage for their prescription medicine costs – also known as 'the donut hole'. The required contribution demands a 20% increase in manufacturer discount.



* Numbers refer to the US only; numbers on the pp 30–31 refer to North America Operations (US and Canada)

are perceived and treated. Engaging with healthcare professionals and patient communities, the company is putting muscle behind efforts to make compassionate and comprehensive obesity care a healthcare priority (see p 26).

"For years, my family has dealt with growth disorders through the experience of one of my sons. It's heart-wrenching because, as a parent, you want what's best for your children. I've seen the difference our therapies have made in his life. And his success inspires me to think about how we can serve millions in ways that are meaningful."

DOUG LANGA
executive vice president
North America Operations

"People with obesity deserve treatment options," says Doug Langa. "That's why we've continued explaining to employers and payers about the importance of long-term weight management that can include Saxenda®, Novo Nordisk's GLP-1 analogue for weight management. There is such a great need to support those looking to lose weight and, more importantly, keep the weight off. Unfortunately, society can get in the way of delivering care, as many don't see obesity as the serious and chronic disease it is. Our aim is to invest in the long term, keeping obesity a key focus in our business strategy, and collaborating with partners to demonstrate the value of obesity management to all stakeholders."

Making a difference in people's lives
Novo Nordisk's leadership within serious chronic disease management is driven by a combined focus on developing effective medicines and a commitment to engaging with professional communities and patients.

For most colleagues across the company, working in diabetes, obesity, haemophilia or growth disorders is more than a job. They have a personal stake in what they do – either because they live with one of these serious chronic diseases themselves, or because they support a loved one who does.

People living with diabetes, like Michelle Bertone, are the reason why Novo Nordisk is committed to maintaining its leadership position in the US. Novo Nordisk employees are determined to find ways to overcome the challenges for people with serious chronic diseases who just want to go about their lives like everyone else. Listening to the voices of these people is a source of inspiration and spurs employees on in their pursuit of new and better medical treatments.

That's also true for Doug Langa. "For years, my family has dealt with growth disorders through the experience of one of my sons. It's heart-wrenching because, as a parent, you want what's best for your children. I've seen the difference our therapies have made in his life. And his success inspires me to think about how we can serve millions in ways that are meaningful."

Collaboration has been fundamental in our approach to driving change and reshaping the care of serious chronic disease. Novo Nordisk is engaged in multiple collaborative programmes to bring health education, disease-state knowledge and resources to communities.

Cities Changing Diabetes in Houston, now in its fourth year, has more than 100 organisations across the fourth largest city in the US working together to address the increase in urban diabetes. Additionally, Novo Nordisk sponsored a unique partnership that has two leading patient organisations – the American Diabetes Association and the American Heart Association – spearheading awareness around the serious link between type 2 diabetes and cardiovascular disease, a leading cause of death.

"I'm incredibly optimistic about the coming year and really enthusiastic about how we will be making a difference," says Doug Langa. "We have all the elements critical for success – solid performance, a broad product portfolio, a strong pipeline and great people. Bringing all of these elements together will be essential for us to deliver on what people with a serious chronic disease need."

More than

167,000

healthcare professionals participated in Novo Nordisk-sponsored independent medical education activities in the US.

Michelle Bertone lives with type 2 diabetes and is a Novo Nordisk employee

"It was shocking and overwhelming to be diagnosed with type 2 diabetes eight years ago, even though all the warning signs were there. I worked hard to bring my HbA1c down, but the treatment regimen was not working for me. With Ozempic® I found a treatment that helps me to achieve my diabetes management goals and allows me to focus on what matters most: my son."

Michelle Bertone is a senior associate working at Novo Nordisk's Plainsboro office. She's active in the company's A1Connection employee affinity group, which works to increase awareness among colleagues of what it is like to live with diabetes.

OTÁVIO DOMINGOS DA COSTA
Otávio has type 2 diabetes and lives in Brazil

Where there are unmet needs, there is opportunity

In Novo Nordisk's International Operations, patients' unmet needs are immediately in sight. Whether in the mature economies of Western Europe or the growth economies of Latin America, the Middle East or South East Asia, millions of people with diabetes, obesity, haemophilia or growth disorders are not in good health – despite medical treatments being available. This is a gap that begs for action and offers opportunities for Novo Nordisk.

The sun never sets over International Operations (IO). Covering all Novo Nordisk operations outside of the US and Canada, IO is made up of five regions and operates in more than 190 countries and in nearly every time zone (see overview pp 30–31). In 2018, this geographically diverse business unit delivered robust sales growth of 7% measured in local currencies.

"In IO, we are used to waking up each morning not knowing what the day brings, and the challenges differ depending on where in the world you look," says Mike Doustdar, executive vice president for International Operations. "What is important is to stay flexible and agile in how we respond to those challenges – this has been the foundation of our strategy and has led to our strong performance."

A world of opportunity

Mike Doustdar is confident that IO continues to be a world of opportunity but also recognises the duty to reach ever more patients. This is what drives him and his 14,000 colleagues each day. "When we look at →

how many people are living with diabetes or obesity in the countries covered by IO, we have to sit up and pay attention," he says. "We also know that in haemophilia and growth disorders, our products are improving lives and we have to ensure access to our products for the people who need them."

The challenges in IO will always be present, yet the opportunities to make tangible improvements to people's lives take precedence. Business growth is set to continue into 2019, and the so-called market-fit approach adopted in 2017 offers a useful lens for zooming in on the specific needs in each and every country.

IO's track record of robust growth and future prospects comes in the context of a global epidemic of both diabetes and obesity, which is following in the wake of economic growth and demographic change. There are millions of patients around the world who can benefit from Novo Nordisk's broad portfolio of products. In 2017, the International Diabetes Federation estimated that more than 392 million people are living with diabetes in the countries covered by IO.[19] The World Obesity Federation's estimate of the number of people with obesity in those countries is even higher, at 570 million – and only a fraction are currently receiving medical treatment. Both organisations forecast considerable increases over the coming decades. In light of this, IO will continue to have opportunities to make a positive impact for these people.

MICHAEL PETERSEN
Michael has obesity and lives in Denmark

A market-fit approach

The way to effectively reach patients, however, differs greatly from one country to the next. In a business unit as geographically, culturally and economically diverse as IO, local strategies must take a tailored approach in order to fully maximise the growth potential.

In 2018, this approach was extended further, offering local management teams more flexibility in portfolio planning, launch sequence and go-to-market strategy in order to align with market realities. With Novo Nordisk's broad portfolio across therapy areas, each business in IO can look remarkably different to others in the pursuit of the right fit.

Take Region Europe, for example. Against the backdrop of ageing societies and squeezed healthcare budgets, Novo Nordisk has been able to bring one or more new-generation insulins to market in several countries, as well as securing leadership in the GLP-1 segment. The market-fit approach has allowed multiple countries to give hundreds of thousands of patients access to new generations of products which offer documented clinical benefits and win leadership in the basal insulin segment. Along with the first launches of the once-weekly GLP-1, Ozempic®, in IO, this has contributed to sales growth of 3% in 2018 measured in local currencies, which is robust in the European healthcare context and delivers a good basis for further sales development in the coming years.

Region AAMEO (Africa, Asia, Middle East and Oceania), the largest region of IO geographically, has also embraced a localised approach which allows for more effective allocation of resources and investments. In many parts of Africa and Asia, this means overcoming barriers to patient access by ensuring distribution and capacity-building. In other countries with more developed healthcare systems, efforts have been directed at offering patients treatments in the form of modern and new-generation insulins and developing the GLP-1 segment. In spite of both economic headwinds and security issues, AAMEO has delivered 11% sales growth in 2018 measured in local currencies, and now reaches over 9 million patients across its broad expanse of countries.

Region China offers the clearest example of how the market-fit approach can provide better outcomes for patients and drive business growth, in particular through digitisation and the localisation of segmentation it allows. Following reimbursement of Victoza®

in 2017, Region China has grown the GLP-1 segment while continuing to ensure access to modern insulins in both the major cities and provinces. The region has harnessed the broader digitisation process in China with a multichannel approach that helps reach patients despite geographical distance, and this effort has contributed to sales growth of 8% in 2018 measured in local currencies.

"Even in the most difficult market conditions, we have relevant products to offer and can be flexible as we strive to ensure patient access. Given the sheer size of the populations who have unmet needs, we have every reason to believe that we can continue to grow and reach millions more wherever we are in the world"

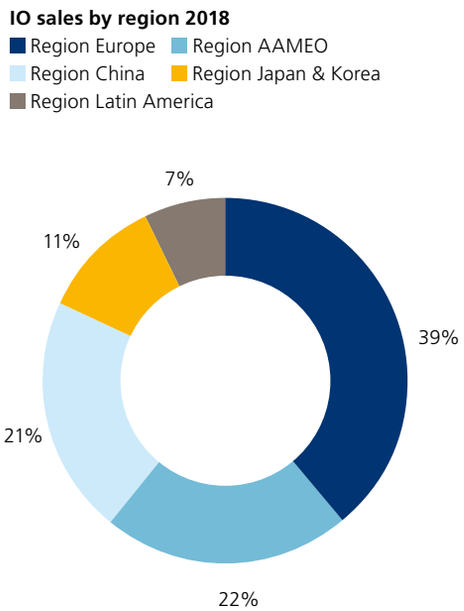
MIKE DOUSTDAR
executive vice president
International Operations

Region Latin America has taken a different route. Expanding the patient base by reaching increasing numbers of people with obesity has led to a sales growth of 29% in 2018 measured in local currencies. The unmet needs in obesity offer an opportunity to reach new patients that go beyond IO's traditional reach.

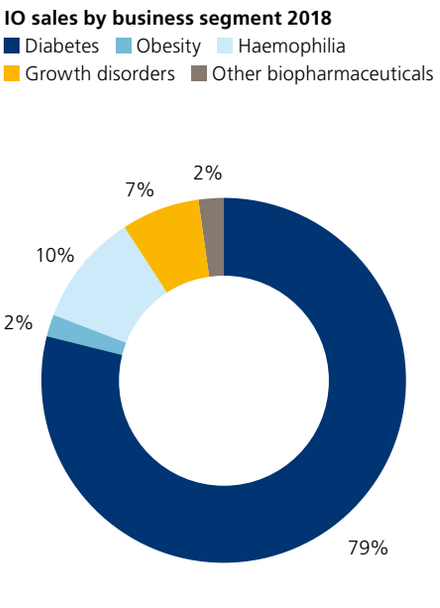
The market-fit approach is not just about seeking growth opportunities – it is also about being ready to meet the challenges posed by healthcare reforms or pricing regimes. This is best exemplified by Region Japan & Korea, where healthcare reforms and intensified competition have made it a more challenging pricing environment. As a consequence the region has experienced a 2% decline in sales in 2018 measured in local currencies and had to be reduced by more than 100 positions. This market-adjusted organisation has brought multiple products to market and the number of patients treated with Novo Nordisk product has increased, building a strong business for the future.

"We have a very strong portfolio and pipeline," says Mike Doustdar. "This means that, even in the most difficult market conditions, we have relevant products to offer and can be flexible as we strive to ensure patient access. Given the sheer size of the populations who have unmet needs, we have every reason to believe that we can continue to grow and reach millions more wherever we are in the world."

IO sales by region 2018



IO sales by business segment 2018



WENDY FRISBY AND SCOTT ROSS
Wendy is living with type 2 diabetes and Scott is living with type 1 diabetes and both are Novo Nordisk employees

Through their eyes: insights from patient experience

When developing treatments for serious chronic diseases, it is essential to build on knowledge and insights from the everyday lives of the people living with the disease.

In Novo Nordisk, this patient-centric approach is put into practice by learning with a network of patients, organised in Disease Experience Expert Panels (DEEPs). DEEP members are individuals living with a serious chronic disease and their relatives. Both groups provide disease-specific insights and advice based on their own everyday experiences. Vicki Mooney, featured on the cover of this report, is one of them. Read her story on p 27.

The input from the DEEPs provides valuable guidance through every part of the Novo Nordisk care delivery model – from research and development of innovative treatments, to building support options for achieving the best possible health outcomes. In 2018, DEEP members have been involved in a wide range of activities, including advisory boards, presentations, workshops and reviews.

The philosophy behind the Novo Nordisk DEEP programme is to listen and learn. DEEP insights have been applied to improve the design of clinical trials, develop effective support materials, and deliver more engaging awareness campaigns. Novo Nordisk and DEEPs often collaborate on global advocacy projects that benefit relevant patient communities and support the achievement of Novo Nordisk's objectives.

In 2019, the plan is to broaden the global outreach, which currently encompasses 120 DEEP members in 12 countries.

Read more at novonordisk.com/patients/DEEP.html

Taking the Biopharm business above and beyond

2018 has been an eventful year for Novo Nordisk's Biopharmaceuticals business (Biopharm). With a new strategy, the company is aiming to further leverage the current portfolio and expand into adjacent therapy areas.

For most people, Novo Nordisk is synonymous with diabetes. But for many years, the company has also focused on improving the lives of people with other serious chronic diseases such as haemophilia and growth hormone disorders.

Despite having a broad portfolio of products addressing areas of significant unmet needs, the Biopharm business has been under pressure in recent years, due to intensified competition and changing market dynamics. Returning to growth in Biopharm has therefore been singled out as a key priority in Novo Nordisk's corporate strategy.

The revised strategy defines the ambition to return to growth. To do so, Novo Nordisk aims to leverage the current portfolio and move into other areas via partnerships and bolt-on acquisitions. And in 2018, the company has taken important steps towards realising this ambition.

Exciting portfolio news

There is no doubt that Novo Nordisk's haemophilia business is under pressure in the new competitor landscape. However, the company has promising new products coming through the pipeline, which may potentially address some of the unmet medical needs within the haemophilia space and help the business to grow.

Novo Nordisk's long-acting factor IX (known as Refixia® in the EU and Rebinyn® in the US) was first launched in the EU in 2017. In 2018, Refixia® was approved in several other countries, and the product has now been launched in Canada, the US, the EU, Japan and Switzerland. More launches are expected to follow in 2019.

Also in 2018, Novo Nordisk's long-acting factor VIII (N8-GP) for the treatment of haemophilia A was submitted for regulatory approval in the US and the EU.

Moreover, the Biopharm pipeline was given a boost in October when the US Food & Drug Administration (FDA) designated concizumab – currently in phase 2 development – as an orphan drug for the treatment of haemophilia A.

"We are pleased with the FDA's orphan drug designation for concizumab. We believe it has the potential to make a real difference for people with haemophilia as a potential once-daily subcutaneous treatment for bleeding prophylaxis," says Jesper Brandgaard, executive vice president, Biopharm.

"Securing future growth via bolt-on is an important element in realising the leadership ambition of returning Biopharm to growth. Specifically, we set the ambition for 2018 to secure two bolt-on additions."

JESPER BRANDGAARD
executive vice president,
Biopharm & Global Legal & Patents

Within growth disorders, the company will continue to roll out its market-leading, once-daily growth hormone product, Norditropin®, which celebrated its 30th anniversary in 2018. The product's competitiveness will be maintained by upgrading Norditropin® injection devices in a number of countries with either NordiFlex® or FlexPro®, in order to make treatment as easy to use as possible.

Somapacitan is a novel, long-acting growth hormone in development for once-weekly subcutaneous use, which will improve convenience. "The injection fatigue following years of daily administration could negatively impact adherence to the treatment," says Novo Nordisk's Chief Science Officer, Mads Krogsgaard Thomsen. "In line with our long-term commitment, we're investigating

SAMUEL JACK ROY AND HIS LITTLE BROTHER SEBASTIAN
Samuel has growth hormone deficiency and lives in the UK

the potential of somapacitan. In 2018, phase 3 studies of once-weekly somapacitan for the treatment of adult growth hormone deficiency (AGHD), a rare endocrine disorder, were successfully completed. Novo Nordisk expects to submit an application for regulatory approval in the second half of 2019."

The company has also presented data from REAL 3, a phase 2 clinical trial in children with growth hormone deficiency who have been treated with somapacitan. The data in this trial showed that somapacitan matched the therapeutic benefits of Norditropin® in children with growth hormone deficiency.

Investing for future growth

Novo Nordisk's Biopharm strategy also outlines other approaches to securing future growth. In particular, the company is planning to expand the business into other areas via bolt-on acquisitions and in-licensing agreements.

"Securing future growth via bolt-on acquisitions is an important element in realising the leadership's ambition of returning Biopharm to growth. Specifically, we set an ambition to secure two bolt-on additions during 2018," says Jesper Brandgaard.

In 2018, Novo Nordisk announced an in-licensing agreement of a promising new sickle cell disease programme. The agreement with the US-based biotech, EpiDestiny, focuses on Eclipse – an oral therapy for people living with sickle cell disease and beta-thalassemia, both of which are life-threatening genetic blood disorders.

"The in-licensing agreement with EpiDestiny gives us an opportunity to enter into a new therapeutic area closely related to our existing haemophilia business," explains Jesper Brandgaard.

As a further effort to expand the Biopharm business, Novo Nordisk also announced an agreement to acquire the US and Canadian rights to Macrilen™ (macimorelin), the first and only FDA-approved oral test for the diagnosis of AGHD.

"The acquisition of Macrilen™ is a step to further strengthen our position in the growth hormone disorder space," says Jesper Brandgaard. "This diagnostic tool is complementary to Norditropin® and will support the upcoming launch of somapacitan."

30 years

In 2018, Norditropin® could celebrate 30 years' anniversary.

Responsible business conduct

The foundation for responsible business conduct is the Triple Bottom Line principle, embedded in the Novo Nordisk Way. It is put into action through global policies and programmes and models for leadership behaviour and underpinned by robust governance and assurance.

With global reach, in a highly regulated sector, Novo Nordisk employees must work in compliance with a wide range of local and international laws as well as industry requirements and adhere to international standards of responsible business conduct. These are implemented in global policies and codes of conduct, and the company's comprehensive quality system ensures that relevant employees are trained in the specific procedures that apply to their job function. This training is repeated regularly and certified.

The policies and procedures are in place to ensure that business is conducted ethically and responsibly; that activities or products do not harm people, communities or the environment; that health and fair employment terms are safeguarded for employees of Novo Nordisk and suppliers; and that the company meets its responsibilities as a corporate citizen through tax payments and community support.

Guided by the Triple Bottom Line principle
Not everything fits into a formula. On a daily basis, people at Novo Nordisk will make independent decisions. The Novo Nordisk Way provides simple and clear guidance that is consistently understood by all employees. It includes the Triple Bottom Line principle, which guides decision-making, requiring everyone to do business in a financially, socially and environmentally responsible way, always keeping the patients' best interests in mind (see pp 15–17).

The Board of Directors ensures that the company conducts business in accordance with the Triple Bottom Line principle, and the Executive Management team is collectively responsible for this, as part of the company's ambition to be a sustainable business (see p 5).

Throughout 2018, management has reaffirmed the imperative of responsible business conduct and strengthened the application of the Triple Bottom Line principle in leadership development and communication.

Business Ethics Compliance Framework
Business ethics is about acting with integrity and in compliance with local and international standards. Ethical misconduct or non-compliance could adversely affect people, communities and the environment, and expose Novo Nordisk to civil and criminal penalties, leading to financial and reputational loss.

Novo Nordisk keeps a close eye on compliance with all applicable local and international anti-corruption laws, regulations and standards, such as the US Foreign Corrupt Practices Act and the UK Bribery Act, codes developed by patient organisations, and voluntary industry codes.

These requirements are spelled out in the company's Business Ethics Compliance Framework, which includes a Code of Conduct. From the outset, business ethics focused on preventing corruption, fraud and theft in all its forms, ranging from extortion and bribery to other ways of exercising undue influence in business relationships. In 2018, in compliance with the UN Guiding Principles on Business and Human Rights, respect of human rights was incorporated into the Code of Conduct for implementation globally via legal and compliance functions.

Any suspected breaches of the company's standards can be reported anonymously by employees and external parties through the Compliance Hotline. Breaches are investigated and, if substantiated, action is taken immediately. Internal audits, announced or unannounced, are conducted regularly, and findings are reported to the Audit Committee (see pp 47–48).

Human rights due diligence
Novo Nordisk is a long-standing signatory to the UN Global Compact and supports its 10 principles of responsible business conduct, which cover human and labour rights, environment and anti-corruption. Applying the framework of the UN Guiding Principles on Business and Human Rights, Novo Nordisk conducts regular assessments of risks and impacts on all human rights across global processes and corporate functions. The assessments are informed by expert and peer inputs, engagement with stakeholders, including patient representatives, and cross-organisational reviews. In 2019, human rights risk and impact assessments will be initiated in selected subsidiaries. Salient human rights issues are addressed through mitigating action plans, and progress is reported annually.

Science-based approach
In 2018, Novo Nordisk assessed its business activities against a set of science-based criteria for what it would take to achieve the conditions required for the world's population to thrive within the limits of the finite resources of our planet. These include the use of resources as well as waste and emissions from the full spectrum of business activities.

Based on a comprehensive strategy review, informed by trend analyses and stakeholder insights, Novo Nordisk is taking a new approach to managing environmental impacts, with a ambition to have zero environmental impact from the company's operations (see p 29). This will also apply to the company's long-standing climate action strategy. Novo Nordisk's targets are consistent with the Paris Agreement. Climate-related risks for Novo Nordisk's own production and suppliers are identified and assessed through the risk management system. Novo Nordisk is taking a step-wise approach to incorporating the recommendations by the Financial Standards Board's Task Force on Climate-related Financial Disclosures.

Read more at novonordisk.com/sustainable-business.html

Risk management enables better decision-making

Novo Nordisk's rigorous approach to enterprise risk management enables management to protect and enhance the value of assets, people, performance and reputation.

Risk management requires vigilance 24/7. Novo Nordisk is exposed to risks throughout its value chain – from early discovery of new, promising molecules to the production and delivery of medicines to the patients who rely on them. Some risks are inherent in the pharmaceutical industry, such as delays or failures of potential new medicines in the Research & Development pipeline, while others are well-known to any manufacturing company with global production, such as supply disruptions.

Product quality and patient safety must never be compromised and are therefore front and centre of the company's enterprise-wide risk management set-up. Risks are assessed in terms of risks to people as well as potential financial loss and reputational damage for Novo Nordisk. See an overview of Novo Nordisk's key risks on pp 42–43.

Heat map: a three-year horizon
Executive Management and the Board of Directors review a 'heat map' of the most significant risks on a quarterly basis. The mapping is based on insights from management teams in all organisational areas, and includes those risks that could cause significant disruptions to the business over a three-year horizon. The most significant risks are those that would have a material negative impact on the business and a significant adverse impact on people. Discussions about risks inform decision-making by management teams.

Highlights from the risk profile
In the pipeline, the successful development, approval and launch of semaglutide as a once-daily GLP-1 tablet treatment for adults with type 2 diabetes is key to Novo Nordisk's future sales growth. Any delays regarding submission for market authorisation would impact patients' access to the new product and entail loss of revenues for Novo Nordisk. With the successful completion of the phase 3a PIONEER trial programme, the next critical milestone is submission for product registration, planned for the first half of 2019 (see p 20).

Ozempic®, the once-weekly injection-based version of semaglutide, is another important growth driver for Novo Nordisk. With the successful launch in the US, Canada and the first European markets in 2018, a significant milestone has been reached, and the focus is now on continuing to develop the market for Ozempic®.

Novo Nordisk is taking action to mitigate potential supply disruptions, in case the negotiations between the UK and the EU result in a 'No-Deal Brexit'. The company is working closely with trade associations and other relevant stakeholders to ensure that the interests of patients are given priority in negotiations.

Healthcare reforms and other government measures to curb drug costs pose a risk to market access and prices for pharmaceutical products. Such measures may be implemented at short notice and the impact can be difficult to forecast.

Fluctuations in Novo Nordisk's key invoicing currencies also present a risk that is difficult to assess, yet can have a very tangible financial impact. Novo Nordisk hedges cash flows for selected currencies and provides estimates in outlooks on a quarterly basis.

With growing digitisation, the threat of cyber-attacks and cyber espionage is increasing and a major computer virus or malware attack could lead to severe business disruption. Novo Nordisk is investing in business continuity measures, and is continuously upgrading its IT security systems to protect against such attacks, and to detect and respond to cyber-attacks that are happening on a daily basis.

Legal and compliance risks such as lawsuits or investigations by authorities could have significant financial and reputational impact. See ongoing cases on p 80 and an update on Novo Nordisk's Business Ethics Compliance Framework on p 40

Understanding the impacts of macro developments
A long-term perspective is imperative in order to anticipate, adapt to and create new business opportunities from changes in the business environment. Macro-developments in the global economic and political environment are signposts of emerging risks that may be more difficult to quantify, but which are important for strategic decisions with a 10-year horizon and beyond. Scenarios and risk-thinking exercises are part of the strategic planning process, and include analyses of market dynamics as well as socio-economic and political developments that present risks or opportunities for Novo Nordisk.

High on the agenda is the concern over access and affordability for patients. Novo Nordisk is determined to provide access to affordable medicines for people with serious chronic diseases everywhere and has a range of global programmes and local initiatives. This is an enormous task, however, and will require a long-term effort in collaboration with healthcare systems, patients and other influential stakeholders. Political and administrative measures from governments, such as those anticipated in the US to 'lower drug prices and reduce out-of-pocket costs' and other steps to reform healthcare, may be part of the solutions, but also have a wide range of potential impacts for the pharmaceutical industry. Novo Nordisk is closely monitoring these developments and engaging in policy debates, advocating on behalf of patients' right to health.

Another example is climate change, which is already impacting the world in profound ways. Companies need to prepare for the risks and opportunities arising from changing weather patterns, sea level rises and other climate impacts. As recommended by the Task Force on Climate-related Financial Disclosures, Novo Nordisk uses climate change scenarios to identify short, medium and long-term risks to production facilities and within the supply chain to ensure a steady supply of medicine to patients.


Read more at novonordisk.com/about-novo-nordisk.html

Novo Nordisk's key risks

Delays or failure of products in pipeline

Supply disruptions

Competition and market developments

Compromises to product quality and patient safety

What is the risk?

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 the production facilities.

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.

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.

Product quality and patient safety may be compromised if, for example, a production facility is found to be in non-compliance, 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.

What is the impact?

Patients would not benefit from innovative treatments and Novo Nordisk's future position as a leader could be jeopardised if the company is 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.

If Novo Nordisk is prevented from supplying products to markets, pharmacies and hospitals could face product shortages, with potential implications for patients' daily treatment needs.

Patients would not have access to the clinical benefits of new products if Novo Nordisk is 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 are expected.

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.

What actions are taken?

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.

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.

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.

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 with production processes or marketed products, root causes are identified and corrected and, if necessary, products are recalled.

See more on pp 20–21

See more on p 16

See more on pp 32–37

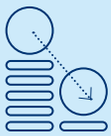
See more on p 16

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 is 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 being prepared 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 of 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 with the US, Canada, China, India and Japan. Hedging activities and calculation of transfer pricing are subject to internal controls and audit.

See more on pp 72–73 and 83–84

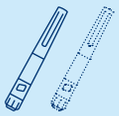
Breach of legislation or ethical standards

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. This could lead to lawsuits against Novo Nordisk or investigations by the authorities

Breaches of legislation or ethical standards could compromise the integrity of the individuals involved and could cause damage to Novo Nordisk's reputation and financial situation.

Due diligence, standard procedures and training are in place to ensure compliance with laws and regulations and prevent breaches of standards, with legal defence where relevant. Compliance with business ethics standards is subject to internal audit.

See more on p 101



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.

See more on pp 20–21 and 74–75

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 490,000,000 is divided into an A share capital of nominally DKK 107,487,200 and a B share capital of nominally DKK 382,512,800. 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. As of 31 December 2018, Novo Holdings A/S also held a B share capital of nominally DKK 29,957,800. 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 1,913 million B shares. Each A share carries 200 votes and each B share carries 20 votes.* No complete record of all shareholders exists; however, based on available sources of information about the company's shareholders, as of 31 December 2018 it is estimated that shares were geographically distributed as shown in the chart on the opposite page. As of 31 December 2018, the free float of listed B shares was 89.3% (of which approximately 12.2% are listed as ADRs), excluding the Novo Holdings A/S holding and Novo Nordisk's holding of treasury shares which, as of 31 December 2018, was DKK 41,109,130 nominally. For details about the share capital, see note 4.1 on pp 81-82.

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 any excess capital, after the funding of organic growth opportunities, investments and acquisitions, 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. As illustrated on the opposite page, Novo Nordisk has continuously increased both the payout ratio and the dividend paid over the past five years. The final dividend for 2017 paid in March 2018 was equal to DKK 4.85 per A and B share of DKK 0.20 as well as for ADRs. The total dividend for 2017 was DKK 7.85 per A and B share of DKK 0.20, corresponding to a payout ratio of 50.3%, which is on a par with the 2017 pharma peer group average of 50.2%. In August 2018, an interim dividend was paid equalling DKK 3.00 per A and B share of DKK 0.20 as well as for ADRs. For 2018, the Board of Directors will propose a final dividend of DKK 5.15 to be paid in March 2019, equivalent to a total dividend for 2018 of DKK 8.15 and a payout ratio of 50.6%. The company expects to distribute an interim dividend in August 2019, and further information regarding such interim dividend will be announced in connection with the financial report for the first six months of 2019. Dividends are paid from distributable reserves. Share premium is a distributable reserve and any former share premium reserve is considered to have been fully distributed. Novo Nordisk does not pay a dividend on its holding of treasury shares. Shareholders' enquiries concerning dividend payments and shareholder accounts should be addressed to Investor Service. Read more on the back cover.

Share repurchase programme for 2018/2019
During the 12-month period beginning 1 February 2018, 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 15 billion. The total programme may be reduced in size if significant product in-licensing or bolt-on acquisition opportunities arise during 2019. 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 2019, 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 480,000,000, divided into A share capital of DKK 107,487,200 and B share capital of DKK 372,512,800.

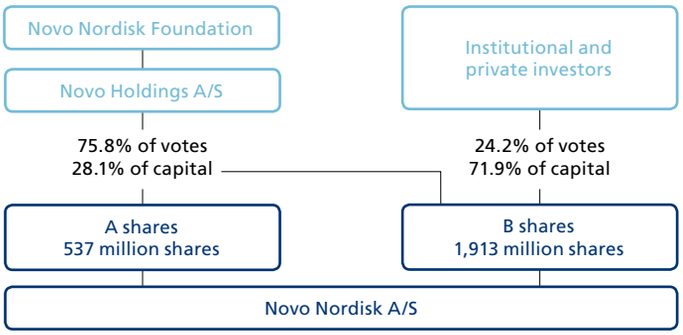
Share price development
Novo Nordisk's share price decreased by 10.9% between its 2017 close of DKK 334.5 and the 31 December 2018 close of DKK 297.9. For comparison purposes, the Danish OMXC20 CAP stock index decreased by 13.2% and the pharma peer group increased by 15% during 2018. The total market value of Novo Nordisk's B shares, excluding treasury shares, was DKK 553,142,910,160 as of 31 December 2018.

Communication with shareholders
To keep investors updated about performance and the progress of clinical development programmes, Novo Nordisk hosts conference calls with Executive Management following key events and the release of financial results. Executive Management and Investor Relations also travel extensively to ensure that all investors with a major holding of Novo Nordisk shares can meet with the company on a regular basis and that a number of other investors and potential investors also have access to the company's Executive Management and Investor Relations.

Analyst coverage
Novo Nordisk is currently covered by 34 sell-side analysts, including the major global investment banks that regularly produce research reports on Novo Nordisk. A list of analysts covering Novo Nordisk can be found under 'Investors' at novonordisk.com. Other information which can be accessed via this website includes company announcements from 1995 onwards, financial, social and environmental results, a calendar of investor-relevant events, investor presentations and background information.

* 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%.

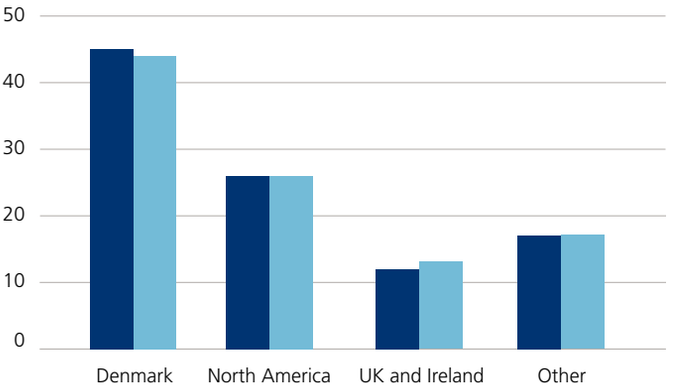
Ownership structure



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

Geographical split*

% of share capital ■ 2018 ■ 2017



*Using shareholder registered home countries

Share price performance

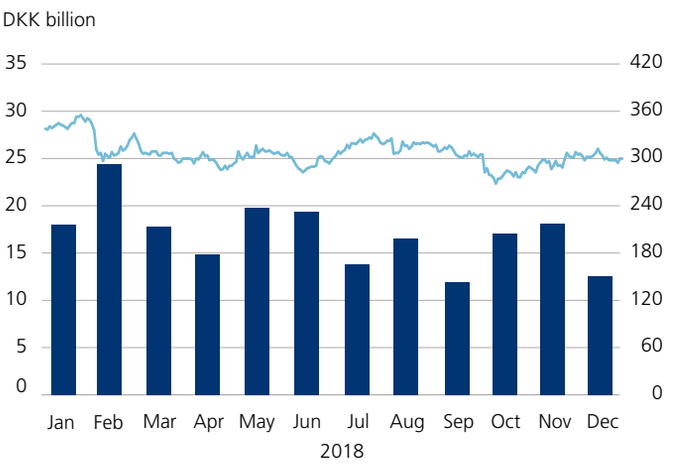
Novo Nordisk share price and indexed peers

■ Novo Nordisk ■ Pharmaceutical industry index* ■ OMXC20 CAP

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

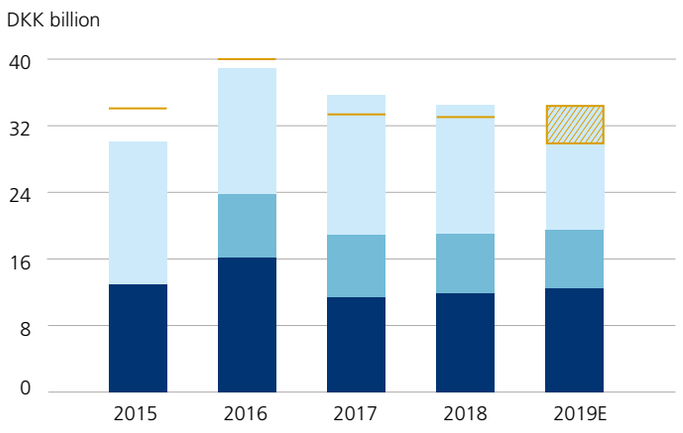
Price development and monthly turnover of Novo Nordisk B shares

■ Turnover of B shares (left) ■ Novo Nordisk's B share closing prices (right)



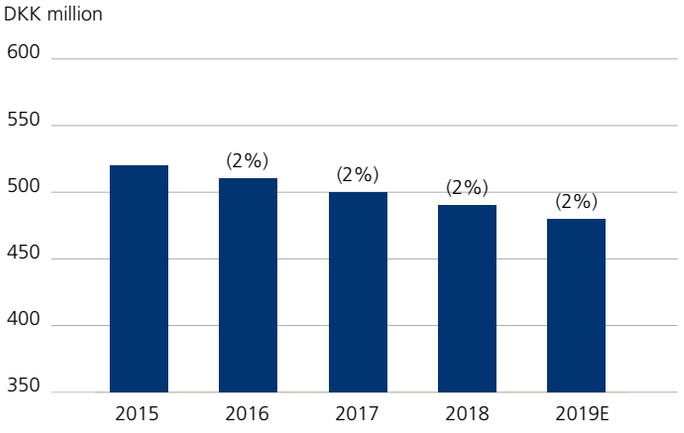
Cash distribution to shareholders

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



Development in share capital

■ Share capital



Corporate governance

The Board of Directors of Novo Nordisk focuses on good governance practices. After 13 years of service on the Board, Göran Ando did not seek re-election at the Annual General Meeting in 2018 and Helge Lund was elected as the new chair of the Board. The general meeting elected two new board members while the employees of Novo Nordisk A/S elected two new members of the Board and re-elected two others. The Board decided that the Research & Development Committee should continue as a permanent committee. A new chief financial officer was also 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 on pp 44–45.

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 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 six of the eight shareholder-elected board members are independent as defined by the Danish Corporate Governance Recommendations.

NOVO NORDISK SHAREHOLDERS´ MEETING 2018
Denmark

Under Danish law, employees in Denmark may elect a number of board members equalling half of the board members elected by general meetings. 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. Read more about the members of the Board of Directors on pp 50–51 and at novonordisk.com/about_us.

As of 31 December 2018, the Board of Directors consisted of 12 members, eight of whom were elected by shareholders and four by employees in Denmark. The Board of Directors met seven times during 2018. At the Annual General Meeting in March 2018, Göran Ando did not seek re-election and Helge Lund was elected as the new chair of the Board. Andreas Fibig and Martin Mackay were elected as new members of the Board of Directors. Furthermore, at the election of employee representatives to the Board, Mette Bøjer Jensen and Thomas Rantzau were elected as new members and, consequently, Liselotte Hyveled and Søren Thuesen Pedersen stepped down from the Board.

Nomination, self-evaluation and diversity
A proposal for nomination of shareholder-elected board members is presented by the Nomination Committee to the Board of Directors, taking into account required competences as defined by the competence profile and reflecting the results of a self-evaluation process.

In order to support continued fulfilment of the Novo Nordisk Way, the criteria for board members described in the competence profile include integrity, accountability, fairness, financial literacy, commitment and desire for innovation. Board members are also expected to have experience of managing major companies that develop, manufacture and market products and services globally, and some members should have specific experience from the healthcare sector. The competence profile, which includes the nomination criteria, is available at novonordisk.com/about_us.

In 2018, the Board of Directors revised the competence profile by adjusting the competences that should be represented on the Board to ensure that they meet the future demands of the company.

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, succession, potential overboarding 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 2018, the self-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 Research & Development strategy, sourcing of external innovation, commercialisation of the company's products and the development of the company culture.

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 2018, two shareholder-elected board members were female and six were male, while six of the eight shareholder-elected board members were non-Nordic and two were Nordic. The company thus fulfilled its nationality ambition, but did not fulfil its gender ambition. At the Annual General Meeting in 2018, two male candidates were nominated. The selection process was undertaken by the Nomination Committee, which identified several suitable candidates with the assistance of an executive search firm. It was a requirement that diversity was taken into account with regard to experience, background, gender and origin. In the end, the best suitable candidates were male and non-Nordic. The Board of Directors will continue to work on securing the desired diversity on the Board by 2020.

In accordance with section 99b of the Danish Financial Statements Act, Novo Nordisk discloses its gender diversity policy, targets and current performance (see p 15). 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 general meetings. In 2018, the Annual General Meeting elected Helge Lund as chair and Jeppe Christiansen 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 2018, the Chairmanship focused particularly on discussing strategy execution across the value chain, commercialisation strategies in different markets, partnering and acquisition to access external innovation, talent and leadership development, succession preparedness, development of the company culture and adapting the board agenda to meet the future needs of the company.

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 p 51. →

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

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

In 2018, 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 Product Supply, International Operations and North America 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. Finally, it reviewed and discussed the status of Information Security and Business Ethics Compliance within Novo Nordisk.

Nomination Committee
The Nomination Committee assists the Board with oversight of the competence profile and composition of the Board, nomination of members and committees, 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 2018, the Nomination Committee focused particularly on identifying and interviewing candidates. It also reviewed and recommended a revision of the desired competences to be represented on the Board and reviewed the board members' competences based on a self-evaluation conducted by each board member.

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 2018, the Remuneration Committee focused particularly on assessing and recommending to the Board remuneration levels for new executives. It also reviewed and recommended to the Board appropriate levels of remuneration for the executives based on available benchmark data. In addition, the Remuneration Committee conducted general reviews of various executive remuneration components and terms such as short-term incentives, long-term incentives, termination and severance payments, claw back provisions etc.

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 was established in March 2017 in light of the updated research and development strategy and priorities as a temporary board committee.

In 2018, the Board decided that the Research & Development Committee should continue as a permanent committee and revised its charter to include additional responsibilities.

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

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

In 2018, 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 and atherosclerosis. It also reviewed potential external research collaborations as well as acquisitions. The committee also discussed elements to further enhance the R&D organisations' performance, re-allocation of resources and succession management.

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 2018.

98%

attendance at board meetings in 2018. See pp 50–51 for a detailed attendance overview for current board members.

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 2018, Executive Management consisted of nine members including the chief executive officer. On 15 February 2018, Karsten Munk Knudsen was appointed chief financial officer, succeeding Jesper Brandgaard, who retained responsibility for Biopharm and Global Legal & Patents as a continuing member of Executive Management.

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

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 on p 6.

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 of the Danish Corporate Governance Recommendations designated by Nasdaq Copenhagen except the following four recommendations:

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: two executives' employment contracts 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.

For more information, see the Statutory Corporate Governance Report.

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 applicable corporate governance codes for each stock exchange, the Statutory Corporate Governance Report, in accordance with section 107b of the Danish Financial Statements Act, 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

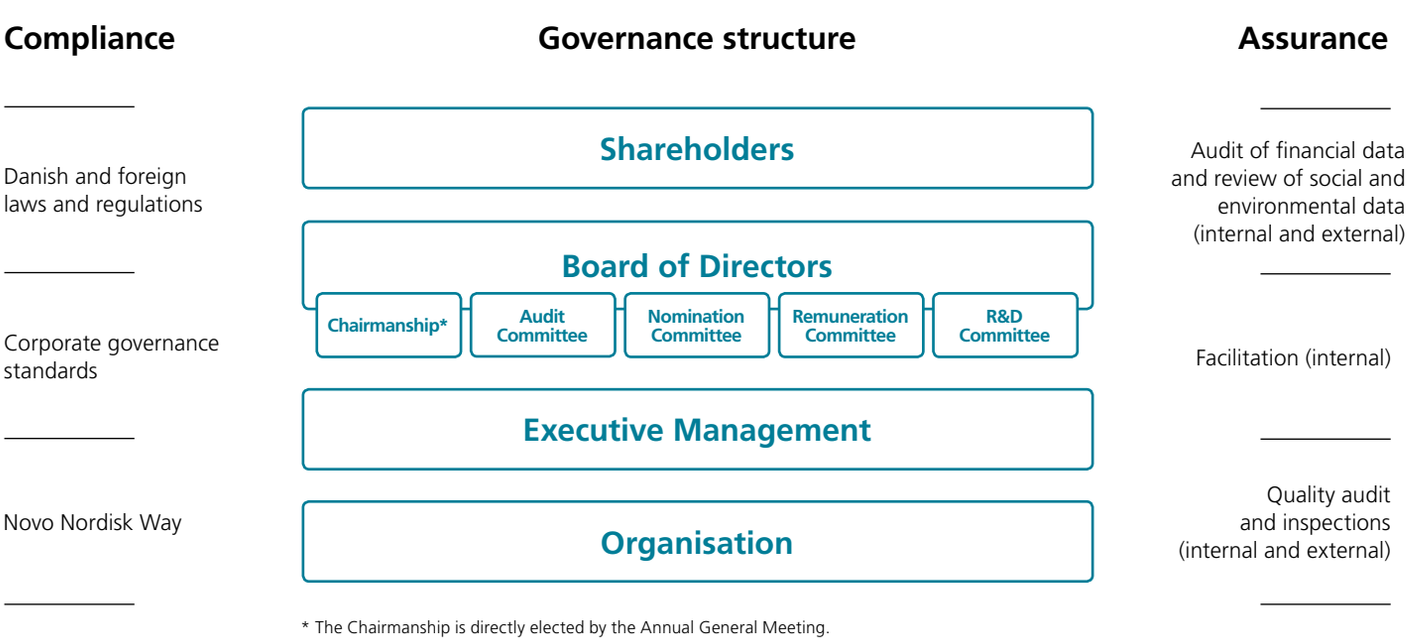
Disclosure regarding change of control

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 takeover 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 take-over 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.

For information about the ownership structure of Novo Nordisk, see 'Shares and capital structure' on pp 44–45. For information on change-of-control clauses in relation to employee contracts for Executive Management, see 'Remuneration' on pp 53–57.

Corporate governance codes and practices



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

Board of Directors

Chair of the Board of Novo Nordisk A/S since 2018 (member for one year in 2014-2015 and again since 2017). Chair of the Nomination Committee since 2018 (member since 2017).

Position and management duties: Operating advisor to Clayton Dubilier & Rice, LLC, US. Chair of the board of BP p.l.c. Member of the boards of P/F Tjaldur, Faroe Islands, Inkerman Holding AS, Norway, and Belron S.A., Luxembourg. Member of the board of trustees of the International Crisis Group.

Special competences: Extensive executive and board experience of large multinational companies headquartered in Scandinavia within regulated markets, 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).

Vice chair and member of the Board of Novo Nordisk A/S since 2013. Chair of the Remuneration Committee since 2017 (member since 2015).

Position and management duties: Chief executive officer of Maj Invest Holding A/S, Denmark, as well as board member and/or executive director in three wholly owned subsidiaries of this company, all in Denmark. Chair of the board of Haldor Topsøe A/S and Emlika ApS, and board member of a wholly owned subsidiary of this company. Vice chair of the board of Symphogen A/S and member 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 at 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 the University of Copenhagen, Denmark (1985).

Member of the Board of Novo Nordisk A/S since 2016, member of the Research & Development Committee since 2017 and member of the Remuneration Committee since 2018.

Position and management duties: Venture partner with 5AM Venture Management LLC, US.

Special competences: Extensive experience in clinical development, medical affairs and corporate strategy across a broad range of therapeutic areas within the pharmaceutical industry, especially in the US.

Education: MD from Washington University, St. Louis, US (1987), and BSc in Life Sciences (1981) and MA in Metabolism and Nutritional Biochemistry (1981), both from Massachusetts Institute of Technology, Cambridge, US.

Member of the Board of Novo Nordisk A/S and member of the Audit Committee since 2018.

Position and management duties: Chair of the board and chief executive officer of International Flavors & Fragrances Inc., US. Member of the board of the German American Chamber of Commerce, Inc., and executive director of the World Council for Sustainable Development.

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).

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.

Position and management duties: Chair of the board of Corvidia Therapeutics Inc. and executive chair of the board of EIP Pharma, Inc., both in the US. Member of the boards of Vifor Pharma Ltd., Switzerland, and Perkin Elmer Inc., US.

Special competences: In-depth knowledge of the regulatory environment in both the US and the EU, having experience of all phases of the product life cycle, including discovery, registration, pre-launch and managing the life cycle while on the market. In addition, she 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).

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 boards of Savills plc and Melrose Industries plc, where she is chair of both audit committees, both in the UK. External member of and chair of the audit committee of the House of Lords Commission, UK.

Special competences: Extensive experience within the field of medical devices, significant financial knowledge and knowledge of how large international companies operate.

Education: FCA (UK Institute of Chartered Accountants) (1982), and BSc (Econ) (Hons) from University College London, UK (1977).

Mette Bøjer Jensen

Member of the Board of Novo Nordisk A/S 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), Copenhagen Business School, Denmark (2010), and Master of Science in Biotechnology from Aalborg University, Denmark (2001).

Kasim Kutay

Member of the Board of Novo Nordisk A/S and the Nomination Committee since 2017.

Position and management duties: Chief executive officer of Novo Holdings A/S, Denmark. Member of the board of Novozymes A/S, Denmark.

Special competences: Extensive experience as financial advisor to the pharmaceutical, biotechnology and medical device industries. He has also advised healthcare companies internationally, including companies based in Europe, the US, Japan and India.

Education: MSc in Economics (1987), and BSc in Economics (1986), both from London School of Economics, UK.

Anne Marie Kverneland

Member of the Board of Novo Nordisk A/S since 2000 and member of the Remuneration Committee since 2017.

Position and management duties: Laboratory technician and full-time union representative in Novo Nordisk A/S. Member of the board of the Novo Nordisk Foundation since 2014.

Education: Degree in Medical Laboratory Technology from 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.

Position and management duties: Co-founded Rallybio LLC, US, in January 2018 and serves as chair of the board 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 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), BSc (First Class Honours) in Microbiology from Heriot-Watt University, Edinburgh, UK (1979).

Thomas Rantzau

Member of the Board of Novo Nordisk A/S and member of the Research & Development Committee since 2018.

Position and management duties: Area specialist in Product Supply, Novo Nordisk A/S.

Education: Degree in food engineering from DTU, Denmark (2003) and dairy technician diploma (1992).

Stig Strøbæk

Member of the Board of Novo Nordisk A/S since 1998 and member of the Audit Committee since 2013.

Position and management duties: Electrician and 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 2018[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)[4]	2017[3]	2019	Norwegian	Oct. 1962	Independent	7/7	5/5	1/1		6/6	
Jeppe Christiansen (m)	2013	2019	Danish	Nov. 1959	Not independent [5]	7/7	7/7		5/5		
Brian Daniels (m)	2016	2019	American	Feb. 1959	Independent	7/7			4/4		5/5
Andreas Fibig (m)	2018	2019	German	Feb. 1962	Independent [6, 7]	3/5		2/4			
Sylvie Grégoire (f)	2015	2019	Canadian/American	Nov. 1961	Independent [6, 7]	7/7		5/5		5/5	5/5
Liz Hewitt (f)	2012	2019	British	Nov. 1956	Independent [6, 7]	7/7		5/5	3/4		
Mette Bøjer Jensen (f)	2018	2022	Danish	Dec. 1975	Not independent [8]	5/5				5/5	
Kasim Kutay (m)	2017	2019	British	May 1965	Not independent [5]	7/7				5/6	
Anne Marie Kverneland (f)	2000	2022	Danish	Jul. 1956	Not independent [8]	7/7			5/5		
Martin Mackay (m)	2018	2019	American	Apr. 1956	Independent	5/5					4/4
Thomas Rantzau (m)	2018	2022	Danish	Mar. 1972	Not independent [8]	5/5					4/4
Stig Strøbæk (m)	1998	2022	Danish	Jan. 1964	Not independent [6, 8]	7/7		5/5			

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.** As part of the Board succession preparedness activities, Helge Lund was invited to the chairmanship meetings as an observer from April 2017 to March 2018. **5.** Member of the board or the management of Novo Holdings A/S. **6.** 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. **7.** 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. **8.** Elected by employees of Novo Nordisk.

Executive Management

Lars Fruergaard Jørgensen

President and chief executive officer (CEO)

Lars Fruergaard Jørgensen joined Novo Nordisk in 1991 as an economist and has since completed postings in the Netherlands and overseas in the US and Japan. He was appointed executive vice president of IT, Quality & Corporate Development in January 2013, and in November 2014 he took over responsibility for Corporate People & Organisation and Business Assurance and became chief of staff. In January 2017, he was appointed president and chief executive officer (CEO).

Born: November 1966.

Jesper Brandgaard

Executive vice president, Biopharm & Global Legal & Patents

Jesper Brandgaard joined Novo Nordisk in 1999 as senior vice president of Corporate Finance. He was appointed executive vice president and chief financial officer in November 2000. In 2017, he took over responsibility for the Biopharm activities. In February 2018, he changed his area of responsibility and became executive vice president of Biopharm and Global Legal & Patents.

Other management duties: Chair of the board of SimCorp A/S and vice chair of the board of Chr. Hansen A/S, where he is also member of the nomination and audit committee, both in Denmark. President of the Council of the Novo Nordisk Haemophilia Foundation, Switzerland.

Born: October 1963.

Maziar Mike Doustdar*

Executive vice president, International Operations

Maziar Mike Doustdar joined Novo Nordisk in 1992 as an office clerk in Vienna, Austria. He was appointed senior vice president of International Operations in 2013 and executive vice president in 2015. In September 2016, he took on additional geographical responsibility and was promoted to executive vice president of an expanded International Operations, leading all commercial units globally, except for the US and Canada.

Born: August 1970.

Lars Green

Executive vice president, Business Services & Compliance

Lars Green joined Novo Nordisk in 1992 as a graduate on the Finance Graduate Programme. In 2004, he was appointed senior vice president of Corporate Finance, and in 2014 he took up the position as senior vice president of Finance & Operations of Novo Nordisk Inc. in the US. In July 2017, he was promoted to executive vice president of Business Services & Compliance.

Other management duties: Member of the board of Novozymes A/S, Denmark, where he also chairs the audit committee.

Born: May 1967.

Karsten Munk Knudsen

Executive vice president and chief financial officer (CFO)

Karsten Munk Knudsen joined Novo Nordisk in 1999 as a business analyst in NNIT A/S, previously a subsidiary of Novo Nordisk, and has since held finance positions of growing size and complexity throughout the Novo Nordisk value chain in Denmark and abroad. In 2014 he was appointed senior vice president of Corporate Finance in Novo Nordisk. In February 2018, he was promoted to executive vice president and chief financial officer.

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

Born: December 1971.

Doug Langa*

Executive vice president, North America Operations

Doug Langa joined Novo Nordisk in 2011 as senior director of Managed Markets. In 2015, he was appointed corporate vice president of Market Access in the US, and in 2016 he was promoted to senior vice president of Market Access in the US. In March 2017, he was appointed senior vice president, head of North America Operations and president of Novo Nordisk Inc. In August 2017, he was promoted to executive vice president, continuing his responsibilities.

Born: October 1966.

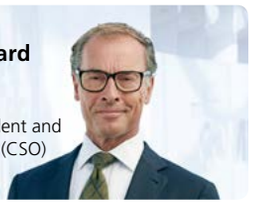
Camilla Sylvest

Executive vice president, Commercial Strategy & Corporate Affairs

Camilla Sylvest joined Novo Nordisk as a trainee in 1996. She subsequently held roles in sales and marketing in Novo Nordisk's headquarters and General Manager positions in Europe and Asia. In 2015, she was appointed senior vice president and general manager of Novo Nordisk's Region China, and in October 2017, she was promoted to executive vice president of Commercial Strategy & Corporate Affairs.

Other management duties: Member of the board of Danish Crown A/S, Denmark.

Born: November 1972.



Mads Krogsgaard Thomsen

Executive vice president and chief science officer (CSO)

Mads Krogsgaard Thomsen joined Novo Nordisk in 1991 as head of Growth Hormone Research. He was appointed senior vice president of Diabetes R&D in 1994, and executive vice president and chief science officer in November 2000.

Other management duties: Chair of the board of the University of Copenhagen and a member of the board of Symphogen A/S, both in Denmark. Member of the editorial boards of international, peer-reviewed journals.

Born: December 1960.

Henrik Wulff

Executive vice president, Product Supply

Henrik Wulff joined Novo Nordisk in 1998 in the logistics and planning function. He was appointed senior vice president of Product Supply in 2013 and executive vice president of Product Supply in April 2015.

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.

Born: November 1970.

* Not registered as executive with the Danish Business Authority.

Remuneration: Board of Directors

At the Annual General Meeting in March 2018 it was decided to increase the fixed base fee to DKK 700,000, while leaving the composition of the remuneration of the Board of Directors unchanged.

Remuneration composition
The remuneration of Novo Nordisk's Board of Directors comprises a fixed base fee, a multiplier of the fixed base fee for the Chairmanship and members of the board committees, fees for ad hoc tasks and a travel allowance. The board fees are evaluated against relevant benchmarks of Danish and other Nordic companies as well as European pharmaceutical companies similar to Novo Nordisk in size, complexity and market capitalisation. In March 2018 the Annual General Meeting approved that the level for the fixed base fee for 2018 should be increased by DKK 100,000 from DKK 600,000 to DKK 700,000. The fee for ad hoc tasks depends on the nature of the task. Further information on the remuneration of the Board of Directors is available at novonordisk.com/about_us.

Travel and expenses
All Board members are paid a fixed travel allowance per board meeting and per board committee meeting of 5,000 euros per meeting in the member's home country involving travel of 5 hours or more, 5,000 euros per meeting outside the member's home country, but on the home country continent, and 10,000 euros per meeting in a country outside the member's home continent.

Expenses such as travel and accommodation in relation to board meetings as well as those associated with continuing education are reimbursed and paid in addition to the travel allowance. Novo Nordisk also pays social security taxes imposed by foreign authorities. Further information on travel and expenses is available at novonordisk.com/about_us.

Incentive programmes
Board members are not offered stock options, warrants or participation in other incentive schemes.

The company's remuneration principles provide guidance for the remuneration of the Board of Directors and Executive Management. These principles are available at novonordisk.com/about-novo-nordisk/corporate-governance/remuneration.html.

Board and committee fee levels 2018

	Board		Audit Committee		Nomination Committee		Remuneration Committee		R&D Committee	
	Multiplier	DKK	Multiplier	DKK	Multiplier	DKK	Multiplier	DKK	Multiplier	DKK
Chair	3.00	2,100,000	1.00	700,000	0.50	350,000	0.50	350,000	0.50	350,000
Vice chair	2.00	1,400,000	-	-	-	-	-	-	-	-
Member	1.00	700,000	0.50	350,000	0.25	175,000	0.25	175,000	0.25	175,000

Actual board remuneration

	2018				2017			
DKK million	Fixed base fee	Fee for ad hoc tasks and committee work	Travel allowance	**Total**	Fixed base fee	Fee for ad hoc tasks and committee work	Travel allowance	Total
Helge Lund[1, 3] (BC and NC)	1.7	0.4	0.6	2.7	0.5	0.3	0.6	1.4
Jeppe Christiansen (BV and RC)	1.4	0.3	0.1	1.8	1.2	0.3	0.2	1.7
Brian Daniels (RDM and RM)	0.7	0.3	0.4	1.4	0.6	0.1	0.5	1.2
Andreas Fibig[1] (AM)	0.5	0.3	0.1	0.9	—	—	—	—
Sylvie Grégoire (AM, NM and RDM)	0.7	0.6	0.3	1.6	0.6	0.4	0.5	1.5
Liz Hewitt (AC and RM)	0.7	0.8	0.3	1.8	0.6	0.7	0.4	1.7
Mette Bøjer Jensen[1] (NM)	0.5	0.2	0.1	0.8	—	—	—	—
Kasim Kutay[1] (NM)	0.7	0.2	0.1	1.0	0.5	0.2	0.2	0.9
Anne Marie Kverneland (RM)	0.7	0.2	0.1	1.0	0.6	0.2	0.1	0.9
Martin Mackay[1] (RDC)	0.5	0.3	0.4	1.2	—	—	—	—
Thomas Rantzau[1] (RDM)	0.5	0.2	0.1	0.8	—	—	—	—
Stig Strøbæk (AM)	0.7	0.3	0.1	1.1	0.6	0.3	0.2	1.1
Göran Ando[2]	0.4	0.2	0.1	0.7	1.8	0.6	0.6	3.0
Liselotte Hyveled[2]	0.2	—	—	0.2	0.6	0.2	0.1	0.9
Søren Thuesen Pedersen[2]	0.2	—	—	0.2	0.6	0.1	0.3	1.0
Former members[2]	—	—	—	—	0.5	0.1	0.2	0.8
Total	10.1	4.3	2.8	**17.2**[4]	8.7	3.5	3.9	16.1[4]

BC = Board chairman, BV = Board vice chairman, AC = Audit Committee chairman, AM = Audit Committee member, NC = Nomination Committee chairman, NM = Nomination Committee member, RC = Remuneration Committee chairman, RM = Remuneration Committee member, RDC = R&D Committee chairman, RDM = R&D Committee member.
1. Kasim Kutay and Helge Lund were first elected in March 2017. Andreas Fibig, Mette Bøjer Jensen, Martin Mackay and Thomas Rantzau were first elected in March 2018. **2.** Göran Ando, Liselotte Hyveled and Søren Thuesen Pedersen resigned as of March 2018. Former members also includes fees to Bruno Angelici and Mary Szela, who resigned in 2017. **3.** Novo Nordisk provides secretarial assistance to the chairman in Denmark and Norway. **4.** Excluding social security taxes paid by Novo Nordisk amounting to less than DKK 1 million (less than DKK 1 million in 2017).

Remuneration: Executive Management

In 2018, the cash bonus for the members of Executive Management under the short-term cash-based incentive programme was 84% of the maximum cash bonus. The members of Executive Management were allocated 70% of their respective maximum share allocation under the long-term share-based incentive programme.

2018 Performance

In 2018, Novo Nordisk exceeded the target for economic value creation by 4.4%, primarily driven by higher operating profit, a lower effective tax rate and partly offset by an unfavourable net impact from currencies. Sales were 1.0% above the target level in local currencies. For strategic reasons, one of the non-financial targets within R&D was cancelled, and the weight was re-allocated to other R&D related targets. All of the remaining non-financial targets were reached in 2018. On this basis, 70% of the maximum share allocation will be allocated to the participants in the long-term share-based incentive programme. Thus, shares equalling 12.6 months' fixed base salary plus pension contribution will be allocated to the chief executive officer, whereas shares equalling 9.4 months' fixed base salary plus pension contribution will be allocated to the executive vice presidents. The shares allocated have a three-year vesting period. 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.

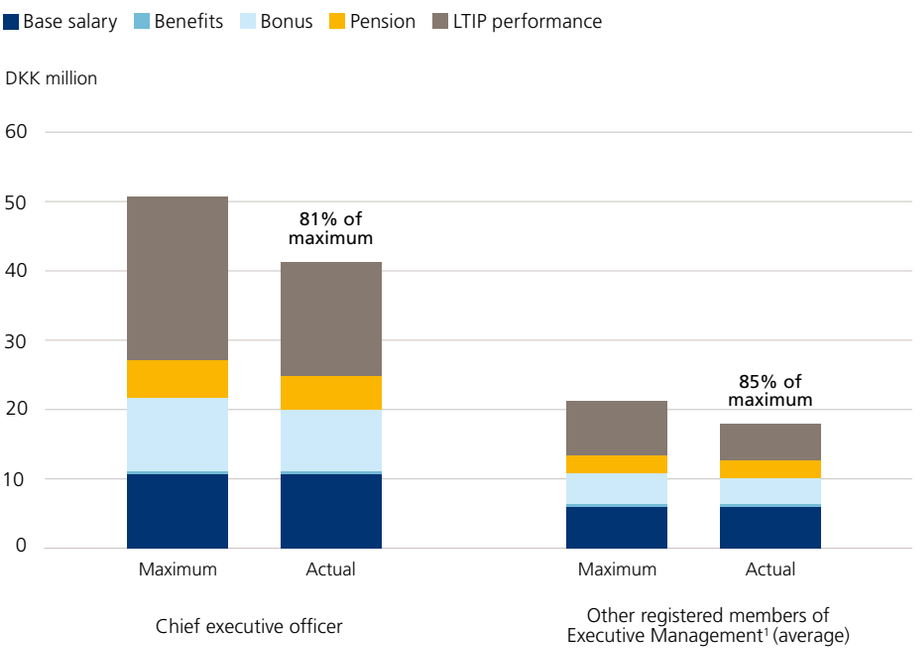
In 2018, the achievement of the predefined functional and individual business targets for the short-term cash-based incentive programme by each executive was assessed. Based on this assessment the average cash bonus for members of Executive Management was determined to be 84% of the maximum cash bonus. Consequently, the cash bonus for the chief executive officer for 2018 was 10 months' fixed base salary plus pension contribution, while the average cash bonus for the executive vice presidents was 7.5 months' fixed base salary plus pension contribution.

Long-term incentive – performance 2018

	Performance	Incentive impact	Months of base salary equivalent CEO	EVPs
Long-term incentive target basis (index 100)			4.5	3.4
Economic value creation[1] (50% of total target allocation)	104.4%	44%	2.0	1.5
A. Incentive performance based on economic value creation			**6.5**	**4.9**
Long-term incentive target basis (index 100)			4.5	3.4
Sales growth adjustment[2] (50% of total target allocation)	101%	35%	1.6	1.2
B. Incentive performance based on sales performance			**6.1**	**4.5**
A. + B. Total incentive based on financial targets			12.6	9.4
C. Non-financial targets achievement[3]	100%	-	-	-
Total incentive performance (A+B adjusted for C)			12.6	9.4
Maximum performance			18	13.5
Performance as percentage of maximum			**70%**	**70%**
Performance as percentage of target			**140%**	**140%**

1. ±10% incentive impact for each percentage point performance above/below 100% until max 110% and min 90%.
2. ±33% incentive impact for each percentage point performance above/below 100% until max 103% and min 97%.
3. Shortfall, if performance is below 85%, deducted from incentive performance.

Total remuneration composition and performance overview for CEO and EVPs – 2018



1. Includes executives who have been registered with the Danish Business Authority in 2018 for the full year.

Remuneration composition

Novo Nordisk's Remuneration Principles provide the framework for the remuneration of the Executive Management. Remuneration has been designed to align the interests of the executives with those of the shareholders.

Executive remuneration is evaluated annually against relevant benchmarks of Danish and other Nordic companies as well as European pharmaceutical companies similar to Novo Nordisk in terms of size, complexity and market capitalisation.

Based on benchmark data, the Board of Directors decided to maintain the overall structure of the remuneration packages for Executive Management in 2018. Remuneration packages for executives comprise a fixed base salary, a cash-based incentive, a long-term share-based incentive, a pension contribution and other benefits. The split between fixed and variable remuneration is intended to result in a reasonable part of the salary being linked to performance, while promoting sound business decisions to meet the company's objectives. As such remuneration is designed to promote short- and long-term achievement in line with the company's strategy. All incentives are subject to claw-back, if it is subsequently determined that payment was based on information that was manifestly misstated.

In March 2018, the Annual General Meeting approved changes in the structure of the long-term share-based incentive programme by increasing the maximum share allocation for the chief executive officer and the executive vice presidents and introducing a possibility to reduce or increase the number of shares allocated depending on the average sales growth in the vesting period. Further, the ability to fully or partially reduce the severance payment, if an executive has taken or takes up new employment after the expiry of the notice period, was introduced. The remuneration principles are available at novonordisk.com/about-novo-nordisk/corporate-governance/remuneration.html.

Fixed base salary

The base salary is intended to attract and retain executives with the professional and personal competences required to drive the company's performance. The base salary of the chief executive officer was phased in over a two-year period ending in 2018.

Cash-based incentive

The short-term cash-based incentive is designed to incentivise individual performance. The incentive is dependent on the achievement of predefined short-term financial, process, people and customer targets relating to the executive's functional area and on the achievement of personal targets relating to the individual executive.

The Chairmanship evaluates the degree of achievement for each member of Executive Management, based on input from the chief executive officer.

For 2018, the Board of Directors determined that the bonus would be a maximum of 12 months' fixed base salary plus pension contribution for the chief executive officer, and a maximum of 9 months' fixed base salary plus pension contribution for executive vice presidents.

Share-based incentive

The long-term share-based incentive programme is designed to promote the collective performance of Executive Management and align the interests of executives and shareholders. Share-based incentives are linked to both financial and non-financial targets.

The allocation of shares is based on the degree of achievement of the planned economic value creation and on the degree of achievement of the planned level of sales growth. The allocation of shares may be reduced (but not increased) if certain non-financial targets are not met. Non-financial targets are determined on the basis of an assessment of the objectives regarded as particularly important for the fulfilment of the company's long-term performance. The non-financial targets are mainly linked to the company's strategy within the categories of research and development, quality/compliance, people and sustainability. Targets within research and development are related to specific milestones, such as achievement of marketing authorisations, submission of product files to the regulatory authorities in the US and Europe within a certain time frame, successful achievements of milestones in clinical trials and a defined number of product candidates to enter development from discovery. Targets within quality and compliance are related to the number of actual recalls and to quality compliance. Targets within people are related to succession management across the organisation.

For 2018 the Board determined that the maximum share allocation would be up to 18 months' fixed base salary plus pension contribution for the chief executive officer and up to 13.5 months' fixed base salary plus pension contribution for the executive vice presidents. If the targets for economic value creation and sales growth are met, and at least 85% performance is reached for non-financial targets, the allocation of shares will correspond to 9 months' base salary plus pension contribution for the chief executive officer and 6.75 months' base salary plus pension contribution for the executive vice presidents. The amount of shares allocated may be reduced or increased by up to 30%,

Remuneration package components

Remuneration	Board of Directors	Executive Management	Comments relating to Executive Management
Fixed fee/base salary	✓	✓	Accounts for approximately 15–35% of the total value of the remuneration package.*
Fee for committee work	✓	✗	
Fee for ad hoc tasks	✓	✗	
Cash-based incentive	✗	✓	Up to 12 months' fixed base salary + pension contribution per year, typically based on the base salary at the end of the year.
Share-based incentive	✗	✓	Up to 18 months' fixed base salary plus pension contribution for the chief executive officer and up to 13.5 months' fixed base salary plus pension contribution for the executive vice presidents.
Pension	✗	✓	Up to 25% of the fixed base salary and cash-based incentive.
Travel allowance and other expenses	✓	✗	
Other benefits	✗	✓	Executive Management receives non-monetary benefits such as company cars, phones etc. Executives on international assignments may receive relocation benefits.
Severance payment	✗	✓	Up to 24 months' fixed base salary + pension contribution. Executive Management contracts entered into before 2008 exceed the 24-month limit, but will not exceed 36 months' fixed base salary plus pension contribution.

* The interval 15–35% denotes the span between 'maximum performance' and 'on-target performance'.

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.

Pension
The pension contribution is up to 25% of the fixed base salary, including bonus.

Severance payment
Novo Nordisk may terminate employment by giving executives 12 months' notice. Executives may terminate their employment by giving Novo Nordisk 6 months' notice. In addition to the notice period, executives are entitled to a severance payment as described in the overview of the executive remuneration package components. The employment contracts for executives allow severance payments of up to 24 months' fixed base salary plus pension contribution in the event of a merger, acquisition or take-over of Novo Nordisk. For each individual executive the total value of the remuneration relating to the notice period and of the severance payment does not exceed two years of remuneration, including all components of the remuneration. However, employment contracts entered into prior to 2008 allow for severance payments of up to 36 months' fixed base salary plus pension contribution (i.e. a deviation from the 24 months above).

Shareholding requirement
To further align the interests of the shareholders and Executive Management, the chief executive officer should hold Novo Nordisk B shares corresponding to two times the annual base salary plus pension contribution, and the executive vice presidents should hold shares corresponding to the annual base salary plus pension contribution. For executives being promoted or employed from outside Novo Nordisk, the shareholding requirement is built up over a period of 5 years after promotion and employment, respectively. All executives met the shareholding requirement as of 31 December 2018.

Further information on the remuneration of Executive Management is available at novonordisk.com/about_us.

Remuneration of Executive Management and other members of the Management Board

	2018						2017					
DKK million	Fixed base salary[7]	Cash bonus	Pension	Benefits	Share-based incentive[8]	Total	Fixed base salary[7]	Cash bonus	Pension	Benefits	Share-based incentive[8]	Total
Executive Management												
Lars Fruergaard Jørgensen	10.7	8.9	4.9	0.3	16.5	41.3	8.5	9.2	4.4	0.3	9.4	31.8
Jesper Brandgaard[1]	7.1	4.7	3.0	0.3	6.4	21.5	6.3	4.6	2.8	0.3	3.6	17.6
Lars Green	5.0	3.2	2.1	0.3	4.6	15.2	2.2	1.3	0.9	0.2	2.7	7.3
Karsten Munk Knudsen[2]	4.0	2.6	1.6	0.3	4.6	13.1	-	-	-	-	-	-
Camilla Sylvest	5.0	3.2	2.1	0.3	4.6	15.2	1.1	0.6	0.4	0.1	1.3	3.5
Mads Krogsgaard Thomsen	7.1	4.7	3.0	0.3	6.4	21.5	6.3	4.6	2.8	0.3	3.6	17.6
Henrik Wulff	5.7	3.3	2.3	0.3	5.2	16.8	5.1	3.8	2.2	0.3	2.9	14.3
Non-registered members of Executive Management[3]	12.2	10.8	3.6	0.8	10.4	37.8	9.5	6.2 [4]	3.5	0.5	5.0	24.7
Former members of Executive Management:												
Former non-registered members of Executive Management[5]	-	-	-	-	-	-	2.8	1.2	1.5	0.2	-	5.7
Executive Management in total	56.8	41.4	22.6	2.9	58.7	182.4	41.8	31.5	18.5	2.2	28.5	122.5
Other members of the Management Board in total[6]	81.5	36.6	28.3	24.6	45.4	216.4	79.5	31.7	26.8	21.7	34.1	193.8

1. In October 2018 Novo Nordisk announced that Jesper Brandgaard will retire from Novo Nordisk as of April 2019. During the period until April 2020 Jesper Brandgaard will continue to provide certain services for Novo Nordisk. Severance payment of DKK 27.7 million, to be paid in April 2020, is not included in the table above. **2.** On 15 February 2018, Novo Nordisk's Executive Management was expanded to include Karsten Munk Knudsen. Amounts in the table include remuneration from 15 February 2018. **3.** Includes remuneration for Maziar Mike Doustdar and Doug Langa (Doug Langa: effective from 1 March 2017). Amounts for 2017 include taxes paid by Novo Nordisk for Maziar Mike Doustdar due to his international employment terms. In addition, Maziar Mike Doustdar received benefits in accordance with Novo Nordisk's International Assignment Guidelines, such as accommodation, children's school fees, international health insurance and other types of insurance, spouse allowance and tax-filing support, all offered net of tax to the assignee. The benefits received in 2018 not included in the above table amounted to DKK 0.9 million (DKK 2.6 million in 2017). **4.** Following the release of the Annual Report 2017, an additional cash bonus of DKK 2.2 million was granted to a non-registered member of Executive Management. **5.** Effective from 1 March 2017, Jakob Riis decided to leave Novo Nordisk. Remuneration for Jakob Riis for 2017 is included in the table above. In addition, Jakob Riis received benefits in accordance with Novo Nordisk's International Assignment Guidelines, such as accommodation, international health insurance and other types of insurance, spouse allowance and tax-filing support, all offered net of tax to the assignee. Including tax paid by Novo Nordisk, the benefits received in 2017 not included in the above table amount to DKK 1.2 million. **6.** The total remuneration for 2018 includes remuneration of 37 Senior Vice Presidents (33 in 2017). The 2018 remuneration for the Senior Vice Presidents is included in the table above, whereas severance payments to five Senior Vice Presidents of DKK 56.0 million (two Senior Vice Presidents of DKK 13.0 million in 2017) are not included. **7.** Excluding social security taxes paid amounting to DKK 1.2 million (DKK 0.3 million in 2017) for Executive Management and DKK 3.0 million (DKK 2.6 million in 2017) for other members of the Management Board. **8.** The shares are locked up for three years before they are transferred to the participants employed at the end of the three-year period. The value is the cash amount of the share bonus granted in the year using the grant-date market value of Novo Nordisk B shares. For shares allocated for the 2018 performance, the amount of shares may potentially be reduced or increased 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 amount excludes share-based incentive of DKK 11 million assigned to retired Management Board members.

External board remuneration: Jesper Brandgaard serves as chairman of the board of SimCorp A/S, from which he received remuneration of DKK 1,049,385 in 2018 (DKK 1,092,305 in 2017), and as a member of the board of Chr. Hansen A/S, from which he received remuneration of DKK 572,380 in 2018 (no remuneration received in 2017). Lars Green serves as a member of the board of Novozymes A/S, from which he received remuneration of DKK 1,000,000 in 2018 (DKK 1,000,000 in 2017). Camilla Sylvest serves as a member of the board of Danish Crown A/S, from which she received remuneration of DKK 350,000 in 2018 (no remuneration received in 2017). Mads Krogsgaard Thomsen serves as chairman of the board of the University of Copenhagen, from which he received remuneration of DKK 256,897 in 2018 (DKK 209,902 in 2017) and as a member of the board of Symphogen A/S, from which he received remuneration of DKK 125,000 in 2018 (no remuneration in 2017). Henrik Wulff serves as a member of the board of AMBU A/S, from which he received remuneration of DKK 400,000 in 2018 (DKK 300,000 in 2017).

Management's long-term incentive programme

The shares allocated to the members of Executive Management were released to the individual participants subsequent to approval of the Annual Report 2018 by the Board of Directors and the announcement of the full-year financial result for 2018 on 1 February 2019. Based on the share price at the end of 2018, the value of the released shares is as follows:

Value as of 31 December 2018 of shares released on 1 February 2019	Number of shares[1]	Market value[2] (DKK million)
Executive Management		
Lars Fruergaard Jørgensen	17,650	5.3
Jesper Brandgaard	21,768	6.5
Lars Green	8,679	2.6
Karsten Munk Knudsen	7,763	2.3
Camilla Sylvest	2,500	0.7
Mads Krogsgaard Thomsen	21,768	6.5
Henrik Wulff	11,687	3.5
Non-registered members of Executive Management	11,279	3.3
Executive Management in total[3]	103,094	30.7
Other members of the Management Board in total[3]	113,802	33.9

1. Comprises 378,421 shares released from the joint pool for 2015 to the individual participants for the Management Board and 5,100 shares released to members of Executive Management who were not included in the joint pool for 2015 for the Management Board. **2.** The market value of the shares released in 2019 is based on the Novo Nordisk B share price of DKK 297.90 at the end of 2018. **3.** In addition, 166,625 shares (market value: DKK 49.6 million) were released to retired Executive Management and Management Board members.

Management's holding of Novo Nordisk shares

The internal rules for trading in Novo Nordisk securities by board members, executives and certain employees only permit trading in the 15-calendar-day period following each quarterly announcement.

Management's holding of shares

	At the beginning of the year[1]	Additions during the year	Sold/transferred during the year	At the end of the year	Market value[2] DKK million
Helge Lund	3,000			3,000	0.9
Jeppe Christiansen	23,779			23,779	7.1
Brian Daniels	2,100			2,100	0.6
Andreas Fibig	—			—	—
Sylvie Grégoire	1,875			1,875	0.6
Liz Hewitt	3,350			3,350	1.0
Mette Bøjer Jensen	1,340			1,340	0.4
Kasim Kutay	—			—	—
Anne Marie Kverneland	9,920		(200)	9,720	2.9
Martin Mackay	—	2,000		2,000	0.6
Thomas Rantzau	632			632	0.2
Stig Strøbæk	2,050			2,050	0.6
Board of Directors in total	48,046	2,000	(200)	49,846	14.9
Lars Fruergaard Jørgensen	120,762	11,866		132,628	39.5
Jesper Brandgaard	186,305	16,054	(28,554)	173,805	51.8
Lars Green	132,333	6,429	(36,429)	102,333	30.5
Karsten Munk Knudsen	47,002			47,002	14.0
Camilla Sylvest	195	1,938		2,133	0.6
Mads Krogsgaard Thomsen	297,720	16,054	(90,639)	223,135	66.5
Henrik Wulff	87,575	8,659	(38,659)	57,575	17.2
Non-registered members of Executive Management	16,000	8,429	(7,125)	17,304	5.1
Executive Management in total	887,892	69,429	(201,406)	755,915	225.2
Other members of the Management Board	262,954	100,661	(68,566)	295,049	87.9
Outstanding shares for Executive Management and other members of the Management Board[3]	617,435	371,809	(128,435)	860,809[4]	256.4
Total	1,816,327	543,899	(398,607)	**1,961,619**	584.4

1. Following the change in the Board of Directors and the retirement of members of Executive Management and the Management Board, the holding of shares at the beginning of the year has been updated compared with the Annual Report 2017. For new members shareholdings are included from the day they became members of the Board of Directors and Executive Management, respectively. **2.** Calculation of market value is based on the quoted share price of DKK 297.90 at the end of the year. **3.** The annual share allocation to Executive Management and other members of the Management Board is locked up for three years before it is transferred to the participants employed at the end of each three-year period. Based on the split of participants when the shares were allocated, 51% of the shares will be allocated to the members of Executive Management and 49% to other members of the Management Board. In the lock-up period, the number of allocated shares may potentially be reduced in the event of lower-than-planned value creation in subsequent years. **4.** The outstanding shares include the 2015 programme released on 1 February 2019, but exclude 367,905 shares assigned to retired Executive Management and Management Board members.

Income statement

and statement of comprehensive income for the year ended 31 December

DKK million	Note	2018	2017	2016
Income statement				
Net sales	2.1, 2.2	111,831	111,696	111,780
Cost of goods sold	2.2	17,617	17,632	17,183
Gross profit		94,214	94,064	94,597
Sales and distribution costs	2.2	29,397	28,340	28,377
Research and development costs	2.2, 2.3	14,805	14,014	14,563
Administrative costs	2.2	3,916	3,784	3,962
Other operating income, net	2.2, 2.5	1,152	1,041	737
Operating profit		47,248	48,967	48,432
Financial income	4.8	2,122	1,246	92
Financial expenses	4.8	1,755	1,533	726
Profit before income taxes		47,615	48,680	47,798
Income taxes	2.6	8,987	10,550	9,873
Net profit for the year		**38,628**	38,130	37,925
Earnings per share				
Basic earnings per share (DKK)	4.1	15.96	15.42	14.99
Diluted earnings per share (DKK)	4.1	15.93	15.39	14.96

DKK million	Note	2018	2017	2016
Statement of comprehensive income				
Net profit for the year		38,628	38,130	37,925
Other comprehensive income:				
Items that will not be reclassified subsequently to the income statement:				
Remeasurements of retirement benefit obligations	3.5	87	103	(205)
Items that will be reclassified subsequently to the income statement:				
Exchange rate adjustments of investments in subsidiaries		491	(632)	(7)
Cash flow hedges, realisation of previously deferred (gains)/losses	4.3	(2,027)	1,955	682
Cash flow hedges, deferred gains/(losses) incurred during the period	4.3	(1,677)	1,987	(1,911)
Other items		(27)	(577)	(74)
Tax on other comprehensive income, income/(expense)	2.6	755	(1,041)	324
Other comprehensive income for the year, net of tax		**(2,398)**	1,795	(1,191)
Total comprehensive income for the year		**36,230**	39,925	36,734

Cash flow statement

for the year ended 31 December

DKK million	Note	2018	2017	2016
Cash flow statement				
Net profit for the year		38,628	38,130	37,925
Reversal of non-cash items:				
Income taxes in the income statement	2.6	8,987	10,550	9,873
Depreciation, amortisation and impairment losses	3.1, 3.2	3,925	3,182	3,193
Other non-cash items	4.6	6,098	2,027	3,882
Change in working capital	4.5	(3,370)	(3,634)	(3,708)
Interest received		51	101	114
Interest paid		(89)	(87)	(66)
Income taxes paid	2.6	(9,614)	(9,101)	(2,899)
Net cash generated from operating activities		**44,616**	41,168	48,314
Purchase of intangible assets	3.1	(2,774)	(1,022)	(1,199)
Proceeds from sale of property, plant and equipment		13	9	7
Purchase of property, plant and equipment	3.2	(9,636)	(7,626)	(7,068)
Proceeds from sale of other financial assets		178	73	23
Purchase of other financial assets		(248)	(40)	(112)
Sale of marketable securities		—	2,009	2,064
Purchase of marketable securities		—	—	(531)
Proceeds from the partial divestment of associated company	2.5	368	—	—
Dividend received from associated company	5.3	19	26	26
Net cash used in investing activities		**(12,080)**	(6,571)	(6,790)
Purchase of treasury shares, net	4.1	(15,567)	(16,845)	(15,057)
Dividends paid	4.1	(19,048)	(18,844)	(23,830)
Proceeds from borrowings, net	4.4	94	—	—
Net cash used in financing activities		**(34,521)**	(35,689)	(38,887)
Net cash generated from activities		(1,985)	(1,092)	2,637
Cash and cash equivalents at the beginning of the year	4.4	17,158	18,461	15,850
Reclassification of bank overdraft to financing activities	4.4	412	—	—
Exchange gains/(losses) on cash and cash equivalents		44	(211)	(26)
Cash and cash equivalents at the end of the year	4.4	**15,629**	17,158	18,461

Balance sheet

at 31 December

DKK million	Note	2018	2017
Assets			
Intangible assets	3.1	5,145	3,325
Property, plant and equipment	3.2	41,891	35,247
Investment in associated company		531	784
Deferred income tax assets	2.6	2,893	1,941
Other financial assets	4.7	1,242	978
Total non-current assets		**51,702**	42,275
Inventories	3.3	16,336	15,373
Trade receivables	3.4, 4.7	22,786	20,165
Tax receivables		1,013	958
Other receivables and prepayments	4.7	3,090	2,428
Derivative financial instruments	4.2, 4.3, 4.7	204	2,304
Cash at bank	4.2, 4.4, 4.7	15,638	18,852
Total current assets		**59,067**	60,080
Total assets		**110,769**	102,355
Equity and liabilities			
Share capital	4.1	490	500
Treasury shares	4.1	(11)	(11)
Retained earnings		53,406	48,977
Other reserves		(2,046)	349
Total equity		**51,839**	49,815
Deferred income tax liabilities	2.6	118	846
Retirement benefit obligations	3.5	1,256	1,336
Provisions	3.6	3,392	3,302
Total non-current liabilities		**4,766**	5,484
Current debt	4.4, 4.7	515	1,694
Trade payables	4.7	6,756	5,610
Tax payables		4,610	4,242
Other liabilities	3.7, 4.7	14,098	14,446
Derivative financial instruments	4.3, 4.7	2,024	309
Provisions	3.6	26,161	20,755
Total current liabilities		**54,164**	47,056
Total liabilities		**58,930**	52,540
Total equity and liabilities		**110,769**	102,355

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
2016								
Balance at the beginning of the year	520	(10)	46,816	(917)	(686)	1,246	(357)	46,969
Net profit for the year			37,925					37,925
Other comprehensive income for the year			(205)	(7)	(1,229)	250	(986)	(1,191)
Total comprehensive income for the year			37,720	(7)	(1,229)	250	(986)	36,734
Transactions with owners:								
Dividends (note 4.1)			(23,830)					(23,830)
Share-based payments (note 5.1)			368					368
Tax related to restricted stock units (note 2.6)			85					85
Purchase of treasury shares (note 4.1)		(9)	(15,048)					(15,057)
Reduction of the B share capital (note 4.1)	(10)	10						—
Balance at the end of the year	510	(9)	46,111	(924)	(1,915)	1,496	(1,343)	45,269
2017								
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) (note 1.2)			(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**

Notes to the consolidated financial statements

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Section 2
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Section 3
Operating assets and liabilities

Section 4
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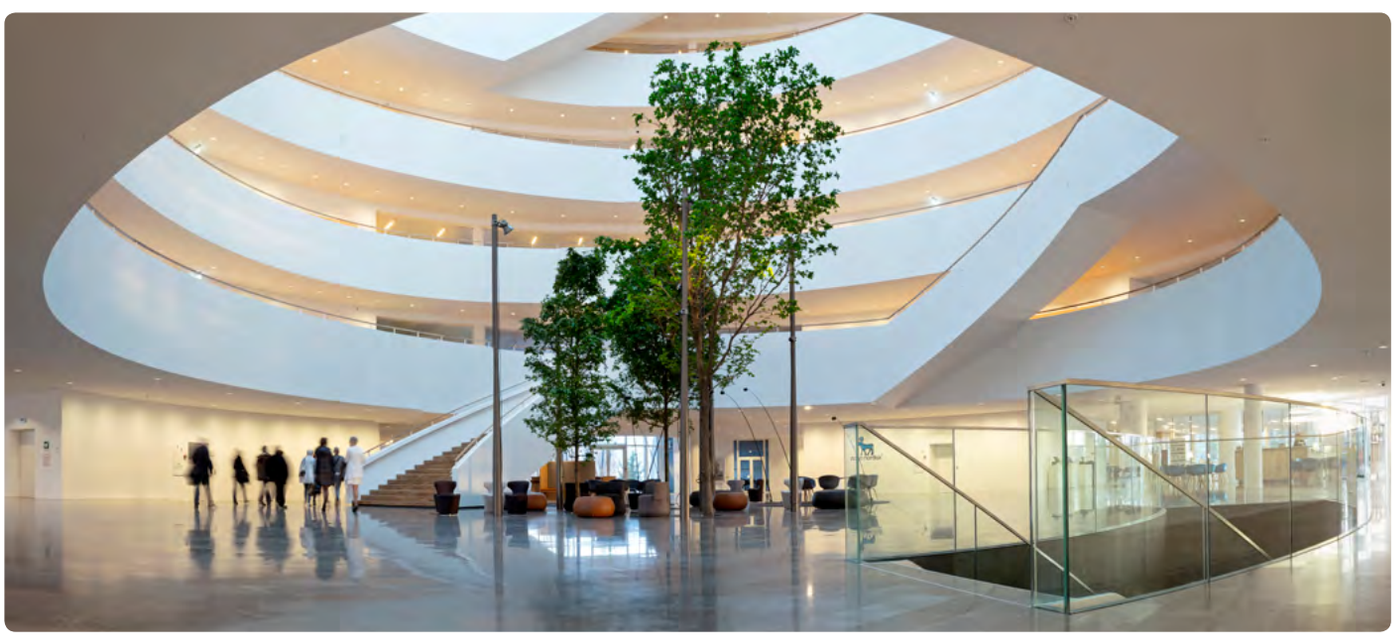


NOVO NORDISK HEADQUARTERS
Denmark

Section 1
Basis of preparation

All entities in the Novo Nordisk Group follow the same Group accounting policies. This section gives a summary of the significant accounting policies, Management's key accounting estimates, new International Financial Reporting Standards (IFRS) requirements and other accounting policies in general. A detailed description of accounting policies and key accounting estimates related to specific reported amounts is presented in each note to the relevant financial item.

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.

Measurement basis
The consolidated financial statements have been prepared on the historical cost basis except for derivative financial instruments, equity investments and marketable securities, 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. Management regards the ones listed in the table below as the most significant accounting policies for the recognition and measurement of reported amounts.

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. These affect the application of accounting policies and reported amounts of assets, liabilities, sales, costs, cash flows and related disclosures.

The key accounting estimates identified are those that have a significant risk of resulting in a material adjustment. 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 in the process of applying the entity's accounting policies, for example regarding recognition 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
US net sales and rebates	Estimate of US sales deductions and provisions for sales rebates	2.1
Research and development	–	2.3, 3.1 and 3.2
Derivative financial instruments	–	4.3
Income taxes and deferred income taxes	Estimate regarding deferred income tax assets and provision for uncertain tax positions	2.6
Property, plant and equipment including impairment	–	3.2
Inventories	Estimate of indirect production costs capitalised	3.3
Trade receivables	Estimate of allowance for doubtful trade receivables	3.4
Provisions and contingent liabilities	Estimate of ongoing legal disputes, litigation and investigations	3.6

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 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.

As of 1 January 2018 Novo Nordisk applied, for the first time, IFRS 9 'Financial Instruments' and IFRS 15 'Revenue from Contracts with Customers'. The impact of the implementation of IFRS 9 and IFRS 15 has been immaterial in relation to recognition and measurement.

Effect from IFRS 9
The implementation of IFRS 9 'Financial instruments', which replaces IAS 39 'Financial Instruments: Recognition and Measurement', has had the effect that the changes to the fair value of minor shareholdings are now, on an investment-by-investment basis, recognised in either the income statement or other comprehensive income. For the current minor shareholdings all changes in the fair value are recognised in the income statement as financial income/expense. Previously fair value changes were recognised in other comprehensive income.
As a result of changed accounting practice relating to minor shareholdings, DKK 90 million has been moved from other reserves to retained earnings within equity as an adjustment to opening equity as at 1 January 2018.

From 1 January 2018, the classification of portfolios of trade receivables in certain geographies which are either sold under master factoring agreements or collected from the customer have changed from loans and receivables measured at amortised cost to fair value through other comprehensive income. No measurement adjustment arose at 1 January 2018 from the reclassification.

Furthermore the time value of currency options is now deferred in other comprehensive income and is recognised in the income statement at the time the hedged transaction affects the income statement (note 4.3). Due to immateriality of open options as at 31 December 2017, Novo Nordisk has implemented this change for new hedging relationships from 1 January 2018.

Effect from IFRS 15
The group has implemented IFRS 15 'Revenue from Contracts with Customers' using the modified retrospective approach.

IFRS 15 replaces the current standards on revenue (IAS 11 'Construction Contracts' and IAS 18 'Revenue'). There is no significant effect on the financial statements from the implementation of the Standard.

Other new interpretations effective 1 January 2018
It is assessed that application of other new interpretations effective on 1 January 2018 has not had a material impact on the Consolidated financial statements in 2018. Further, Management does not anticipate any significant impact on future periods from the adoption of these new interpretations.

New or amended IFRSs that have been issued but have not yet come into effect and have not been adopted early
In addition to the above, the IASB has issued a number of new or amended and revised accounting standards and interpretations that have not yet come into effect. The following standard is expected to have the most significant impact on current accounting regulation:

	Description	Implementation	Impact
IFRS 16 Leases (endorsed by the EU)	IFRS 16 replaces IAS 17, and will change the accounting treatment of leases that are currently treated as operating leases. The standard requires all leases, where Novo Nordisk is the lessee, regardless of type and with few exceptions, to be recognised in the balance sheet as an asset with a related liability. The lease expense will be split between a depreciation charge included in operating costs and an interest expense on lease liabilities included in financial expenses. Currently, the annual costs relating to operating leases are recognised as a single expense amount in the income statement.	Novo Nordisk will adopt the standard on the effective date, 1 January 2019. The standard will be implemented using the modified retrospective approach, meaning that comparative information is not restated. The cumulative effect of initially applying IFRS 16 will be presented as an adjustment to opening retained earnings under equity.	The changes require capitalisation of the majority of the Group's operating leases. This will increase assets and liabilities by 3-4% of the Group's total assets, thus affecting the financial ratios related to the balance sheet. The impact on operating profit will be insignificant. Cash flow from operating activities will increase as the substantial portion of lease payments will be classified as financing cash outflows.

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 being:

- 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

This section comprises notes related to the results for the year and hence provides information related to Novo Nordisk's long-term financial target for growth in operating profit in local currencies. Operating profit decreased by 3.5% in 2018 (increase of 1.1% in 2017). The article '2018 performance and 2019 outlook' on p 10 includes Management's review of the results for the year and the articles 'Innovating for access in a challenging US market' on pp 32–34 and 'Where there are unmet needs, there is opportunity' on pp 35–37 include Management's perspective on the various markets, which is not part of the audited financial statements (unaudited).

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 on behalf of private payers for both the commercial and government channels, and determine which drugs are covered on their formularies (or 'preferred drug lists'). Specifically, Management views the rising healthcare cost trend and highly competitive environment as the primary drivers of payer pressure to reduce overall drug costs.

This has resulted in greater focus on negotiating higher rebates from drug manufacturers. As new products enter the market, private payers are increasingly likely to adopt narrow formularies that exclude certain drugs, while securing higher rebates from the preferred brand(s).

From Management's perspective, in 2018 payers have continued to leverage their size and influence to negotiate higher rebates. Moreover, intense competition in the diabetes space limits the impact of price increases, as much of it is given back to payers in the form of higher rebates and price protection, leading to continued downward pressure on prices.

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.

Sales are measured at the fair value of the consideration received or receivable. 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.

On some markets Novo Nordisk is selling products on a sale-or-return basis.
Where there is historical experience or a reasonably accurate estimate of future returns, estimated product returns is 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 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 (refer to p 66 for further information). However, the actual amount of rebates and discounts may differ from the amounts estimated by Management as more detailed information becomes available.

2.1 Net sales and rebates (continued)

Gross-to-net sales reconciliation

DKK million	2018	2017	2016
Gross sales	230,701	216,174	198,924
US Managed Care and Medicare	(65,207)	(53,077)	(40,874)
US wholesaler charge-backs	(29,469)	(28,324)	(25,416)
US Medicaid rebates	(11,950)	(12,491)	(10,862)
Other US discounts and sales returns	(6,606)	(5,771)	(5,147)
Non-US rebates, discounts and sales returns	(5,638)	(4,815)	(4,845)
Total gross-to-net sales adjustments	(118,870)	(104,478)	(87,144)
Net sales	**111,831**	111,696	111,780

Sales discounts and sales rebates are predominantly issued in the US. As such, rebates amount to 68% of gross sales in the US (64% in 2017 and 59% in 2016). Novo Nordisk sales are impacted by exchange rate changes. For development in key currencies refer to note 4.2 on p 83.

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 relative to competitors. 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. Further, the calculation 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.

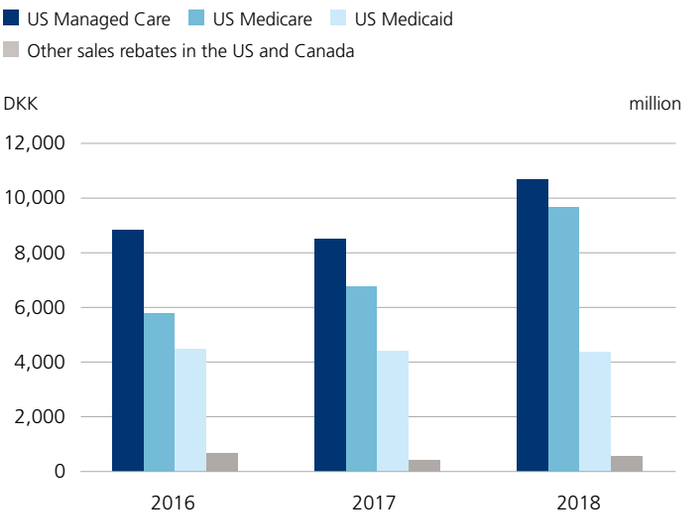
Arrangements with certain healthcare providers may require Novo Nordisk to make refunds to the healthcare providers if anticipated treatment outcomes do not meet predefined targets.

Provisions for sales rebates

DKK million	2018	2017	2016
At the beginning of the year	20,216	19,971	16,508
Additional provisions, including increases to existing provisions	82,315	63,772	56,954
Amount paid during the year	(78,539)	(61,017)	(53,217)
Adjustments, including unused amounts reversed during the year	386	(117)	(822)
Effect of exchange rate adjustment	1,016	(2,393)	548
At the end of the year	**25,394**	20,216	19,971

Unsettled rebates are recognised as Provisions when the timing or amount is uncertain (note 3.6). Where absolute amounts are known, the rebates are recognised as other liabilities. Wholesaler charge-backs are netted against trade receivable balances. Hence, provisions for sales rebates include US Managed Care, Medicare, Medicaid and other minor US rebate types, as well as rebates in Canada.

Provisions for sales rebates



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 and Biopharmaceuticals.

The Diabetes and obesity business segment includes research, development, manufacturing and marketing of products within the areas of insulin, GLP-1 and related delivery systems, oral antidiabetic products (OAD), obesity and other chronic diseases.

As of 1 January 2018, the disaggregation of product net sales was changed to align with management reporting as listed below. Comparative figures have been updated to reflect the new disaggregation of product net sales.

The Biopharmaceuticals business segment includes research, development, manufacturing and marketing of products within the areas of 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 minor 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.

No operating segments have been aggregated to form the reported business segments.

Business segments

DKK million	**2018**	2017	2016	**2018**	2017	2016	**2018**	2017	2016
Segment sales	Diabetes and obesity			Biopharmaceuticals			**Total**		
Long-acting insulin	20,844	22,174	21,346						
- of which Tresiba®	8,035	7,327	4,056						
- of which Xultophy®	1,614	729	207						
- of which Levemir®	11,195	14,118	17,083						
Premix insulin	10,194	10,749	10,678						
- of which Ryzodeg®	714	492	196						
- of which NovoMix®/NovoLog Mix®	9,480	10,257	10,482						
Fast-acting insulin	19,353	20,124	19,945						
- of which Fiasp®	590	99	—						
- of which NovoRapid®/NovoLog®	18,763	20,025	19,945						
Human insulin	9,265	9,793	10,745						
Total insulin	59,656	62,840	62,714						
Victoza®	24,333	23,173	20,046						
Ozempic®	1,796	—	—						
Total GLP-1	26,129	23,173	20,046						
Other diabetes	4,250	4,302	4,612						
Total diabetes	90,035	90,315	87,372						
Obesity (Saxenda®)	3,869	2,562	1,577						
Diabetes and obesity total sales	**93,904**	92,877	88,949						
Haemophilia				9,576	10,469	10,472			
- of which NovoSeven®				7,881	9,206	9,492			
- of which NovoEight®				1,354	1,103	851			
Growth disorders (Norditropin®)				6,834	6,655	8,770			
Other biopharmaceuticals				1,517	1,695	3,589			
Biopharmaceuticals total sales				**17,927**	18,819	22,831			
Segment key figures									
Total net sales	93,904	92,877	88,949	17,927	18,819	22,831	111,831	111,696	111,780
Cost of goods sold	14,716	15,014	14,337	2,901	2,618	2,846	17,617	17,632	17,183
Sales and distribution costs	26,396	25,475	24,387	3,001	2,865	3,990	29,397	28,340	28,377
Research and development costs	12,222	11,358	11,481	2,583	2,656	3,082	14,805	14,014	14,563
Administrative costs	3,266	3,143	3,128	650	641	834	3,916	3,784	3,962
Other operating income, net	538	466	486	614	575	251	1,152	1,041	737
Operating profit	**37,842**	38,353	36,102	**9,406**	10,614	12,330	**47,248**	48,967	48,432
Operating margin	40.3%	41.3%	40.6%	52.5%	56.4%	54.0%	42.2%	43.8%	43.3%
Depreciation, amortisation and impairment losses expensed	3,210	2,536	2,674	715	646	519	3,925	3,182	3,193
Additions to Intangible assets and Property, plant and equipment	9,219	7,565	6,144	3,107	2,226	2,123	12,326	9,791	8,267
Assets allocated to business segments	71,706	61,542	55,081	17,542	14,994	14,798	89,248	76,536	69,879
Non-allocated assets[1]							21,521	25,819	27,660
Total assets							**110,769**	102,355	97,539

1. The part of total assets that remains unallocated to either of the two business segments includes Investment in associated company, Deferred income tax assets, Other financial assets, Tax receivables, Marketable securities, Derivative financial instruments and Cash at bank.

2.2 Segment information (continued)

Geographical areas
Novo Nordisk operates in two main commercial units:

- North America Operations (the US and Canada)
- 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

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. 99.6% of total sales are realised outside Denmark. Of total property, plant and equipment, DKK 24,199 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 is the only country where sales contribute more than 10% of total net sales.

In 2018, Novo Nordisk had three major wholesalers distributing products, representing 20%, 13% and 13% respectively of total net sales (21%, 13% and 12% in 2017 and 21%, 13% and 12% in 2016). Sales to these three wholesalers are within both Diabetes and obesity and Biopharmaceuticals.

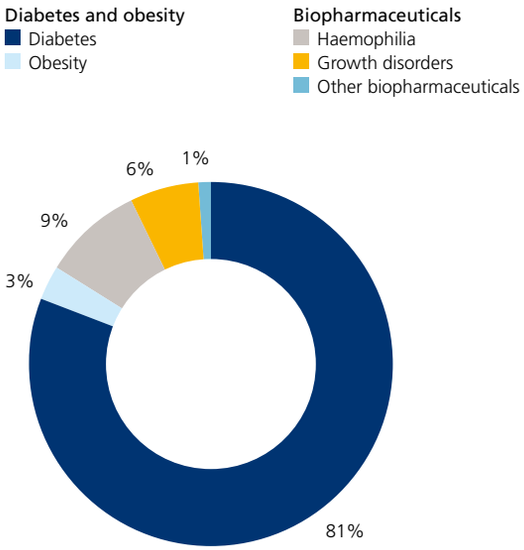
Net sales to be recognised from fulfilling existing customer contracts containing fixed or minimum sales volumes is expected to be DKK 767 million in 2019 and DKK 742 million thereafter.

Net sales will be impacted by exchange rate fluctuations. Conversely, Financial income and Financial expenses will be impacted by the corresponding results of hedging activities. Please refer to notes 4.2, 4.3 and 4.8 for more details on hedging.

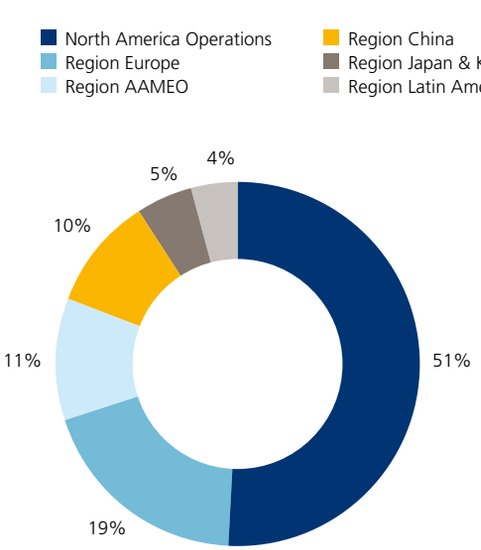
Geographical areas

	2018	2017	2016	**2018**	2017	2016	**2018**	2017	2016	**2018**	2017	2016
DKK million	North America Operations						International Operations					
	Total			Of which the US			Total			Region Europe		
Sales by business segment:												
Long-acting insulin	12,902	14,758	14,782	12,600	14,466	14,493	7,942	7,416	6,564	4,282	3,895	3,374
- of which Tresiba®	5,271	4,982	2,246	5,192	4,970	2,246	2,764	2,345	1,810	1,246	966	665
- of which Xultophy®	529	162	—	528	162	—	1,085	567	207	1,007	560	206
- of which Levemir®	7,102	9,614	12,536	6,880	9,334	12,247	4,093	4,504	4,547	2,029	2,369	2,503
Premix insulin	1,332	1,790	2,080	1,294	1,743	2,032	8,862	8,959	8,598	1,701	1,878	2,040
- of which Ryzodeg®	—	—	—	—	—	—	714	492	196	56	26	15
- of which NovoMix® / NovoLog Mix®	1,332	1,790	2,080	1,294	1,743	2,032	8,148	8,467	8,402	1,645	1,852	2,025
Fast-acting insulin	10,021	10,968	11,427	9,634	10,574	11,058	9,332	9,156	8,518	4,558	4,366	4,200
- of which Fiasp®	233	8	—	211	—	—	357	91	—	357	91	—
- of which NovoRapid® / NovoLog®	9,788	10,960	11,427	9,423	10,574	11,058	8,975	9,065	8,518	4,201	4,275	4,200
Human insulin	1,917	1,937	2,011	1,778	1,766	1,827	7,348	7,856	8,734	1,580	1,770	2,099
Total insulin	26,172	29,453	30,300	25,306	28,549	29,410	33,484	33,387	32,414	12,121	11,909	11,713
Victoza®	18,093	17,465	14,624	17,561	16,929	14,146	6,240	5,708	5,422	3,720	3,451	3,391
Ozempic®	1,757	—	—	1,634	—	—	39	—	—	39	—	—
Total GLP-1	19,850	17,465	14,624	19,195	16,929	14,146	6,279	5,708	5,422	3,759	3,451	3,391
Other diabetes	890	943	930	733	782	776	3,360	3,359	3,682	579	605	653
Total diabetes	46,912	47,861	45,854	45,234	46,260	44,332	43,123	42,454	41,518	16,459	15,965	15,757
Obesity (Saxenda®)	2,658	1,993	1,446	2,446	1,828	1,366	1,211	569	131	207	102	28
Diabetes and obesity total	49,570	49,854	47,300	47,680	48,088	45,698	44,334	43,023	41,649	16,666	16,067	15,785
Haemophilia	4,004	5,023	4,934	3,723	4,852	4,710	5,572	5,446	5,538	2,781	2,828	2,520
- of which NovoSeven®	3,457	4,609	4,589	3,278	4,451	4,378	4,424	4,597	4,903	1,944	2,245	2,082
- of which NovoEight®	308	315	254	291	315	254	1,046	788	597	776	551	416
Growth disorders	2,834	2,550	4,498	2,823	2,543	4,495	4,000	4,105	4,272	1,511	1,572	1,661
Other biopharmaceuticals	500	582	2,510	262	348	2,291	1,017	1,113	1,079	721	722	716
Biopharmaceuticals total	7,338	8,155	11,942	6,808	7,743	11,496	10,589	10,664	10,889	5,013	5,122	4,897
Total sales by business and geographical segment	**56,908**	58,009	59,242	**54,488**	55,831	57,194	**54,923**	53,687	52,538	**21,679**	21,189	20,682
Total sales growth as reported	**(1.9%)**	(2.1%)	4.2%	**(2.4%)**	(2.4%)	4.1%	**2.3%**	2.2%	2.9%	**2.3%**	2.5%	(0.6%)
Property, plant and equipment	13,040	7,318	4,599	13,023	7,298	4,599	28,851	27,929	25,580	25,500	24,665	22,040
Trade receivables, net	12,902	10,742	10,604	12,643	10,517	10,426	9,884	9,423	9,630	3,388	3,273	3,304
Allowance for doubtful trade receivables	*(12)*	*(32)*	*(41)*	*(12)*	*(32)*	*(41)*	*(1,358)*	*(1,262)*	*(1,182)*	*(241)*	*(223)*	*(166)*
Total assets	30,349	20,612	18,684	29,732	20,180	18,349	80,420	81,743	78,855	64,327	65,600	63,407

Sales by business segment 2018



Sales by geographical area 2018



Geographical areas (continued)

2018	2017	2016	**2018**	2017	2016	**2018**	2017	2016	**2018**	2017	2016
						International Operations (continued)					
Region AAMEO			Region China			Region Japan & Korea			Region Latin America		
1,281	1,229	1,180	814	694	547	857	872	881	708	726	582
337	261	181	16	2	—	751	739	711	414	377	253
58	7	1	—	—	—	—	—	—	20	—	—
886	961	998	798	692	547	106	133	170	274	349	329
2,606	2,686	2,388	3,783	3,555	3,363	650	697	677	122	143	130
275	183	97	—	—	—	351	253	58	32	30	26
2,331	2,503	2,291	3,783	3,555	3,363	299	444	619	90	113	104
2,194	2,261	1,995	1,450	1,253	1,059	779	941	998	351	335	266
—	—	—	—	—	—	—	—	—	—	—	—
2,194	2,261	1,995	1,450	1,253	1,059	779	941	998	351	335	266
2,065	1,922	2,153	2,821	3,096	3,361	187	232	302	695	836	819
8,146	8,098	7,716	8,868	8,598	8,330	2,473	2,742	2,858	1,876	2,040	1,797
841	858	715	521	309	255	614	590	623	544	500	438
—	—	—	—	—	—	—	—	—	—	—	—
841	858	715	521	309	255	614	590	623	544	500	438
675	754	846	1,672	1,566	1,697	368	376	434	66	58	52
9,662	9,710	9,277	11,061	10,473	10,282	3,455	3,708	3,915	2,486	2,598	2,287
418	190	46	1	—	—	175	—	—	410	277	57
10,080	9,900	9,323	11,062	10,473	10,282	3,630	3,708	3,915	2,896	2,875	2,344
1,177	1,163	1,101	199	216	158	557	681	737	858	558	1,022
1,049	1,097	1,082	194	215	158	400	497	559	837	543	1,022
109	52	11	5	1	—	135	169	170	21	15	—
680	676	906	20	15	15	1,538	1,579	1,469	251	263	221
216	279	250	4	5	3	72	104	104	4	3	6
2,073	2,118	2,257	223	236	176	2,167	2,364	2,310	1,113	824	1,249
12,153	12,018	11,580	**11,285**	10,709	10,458	**5,797**	6,072	6,225	**4,009**	3,699	3,593
1.1%	3.8%	2.7%	**5.4%**	2.4%	5.9%	**(4.5%)**	(2.5%)	14.5%	**8.4%**	3.0%	(2.8%)
723	566	525	1,812	1,884	2,095	201	146	161	615	668	759
3,237	3,468	3,164	1,841	1,541	1,773	504	279	305	914	862	1,084
(866)	*(823)*	*(817)*	—	—	—	*(5)*	*(5)*	*(5)*	*(246)*	*(211)*	*(194)*
5,635	5,876	4,937	6,003	5,927	5,697	1,503	1,304	1,248	2,952	3,036	3,566

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 anti-diabetic drugs for diabetes treatment.
- GLP-1s, combinations and new modes of action for weight management.
- 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 for treatment of NASH, cardiovascular- and chronic kidney disease.

The research activities 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 internal research costs. In line with industry practice, internal development costs are also expensed as incurred, due to significant regulatory uncertainties and other uncertainties inherent in the development of new products. Hence, these 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. Further, the costs comprise amortisation, depreciation and impairment losses related to software and property, plant and equipment used in the research and development activities.

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

- Up-front payments and milestone payments paid to licence/research collaboration are capitalised as intangible assets. Amortisation is initiated when regulatory approval is obtained and amortisation is classified as cost of goods sold over the useful life, please refer to note 3.1.
- Royalty expenses paid to partnerships after regulatory approval are expensed as cost of goods sold.
- Royalty income received from partnerships 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	**2018**	2017	2016
Diabetes and obesity	12,222	11,358	11,481
Biopharmaceuticals	2,583	2,656	3,082
Total	**14,805**	14,014	14,563

Research and development costs

DKK million	**2018**	2017	2016
Internal and external Research and development costs	7,280	7,430	7,494
Employee costs (note 2.4)	6,288	5,848	6,149
Amortisation and impairment losses, intangible assets (note 3.1)	769	211	427
Depreciation and impairment losses, property, plant and equipment (note 3.2)	468	525	493
Total Research and development costs	**14,805**	14,014	14,563
As percentage of net sales	13.2%	12.5%	13.0%

For a review of the development in research and development costs, refer to p 10 and p 14, '2018 performance and 2019 outlook', which is not part of the audited financial statements.

Research costs comprise the very early stages of the drug development cycle from the initial drug discovery until the drug is ready for administration to humans. The activities initially focus on identifying a single drug candidate with a profile that will support a decision to initiate development activities. Before selection of the final drug candidate, it is tested in animals to gather efficacy, toxicity and pharmacokinetic information.

Development costs are incurred from the start of phase 1, when the drug is administered to humans for the first time; these are the projects captured in the pipeline overview on pp 20–21 (unaudited). The final product is developed, and subsequent clinical trials (phase 2 and 3) are conducted to further test the drug in humans, using the results from these trials to attempt to obtain marketing authorisation, permitting Novo Nordisk to market and sell the developed products.

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	2018	2017	2016
Wages and salaries	25,259	23,869	24,651
Share-based payment costs (note 5.1)	414	292	368
Pensions – defined contribution plans	1,791	1,800	1,829
Pensions – defined benefit plans (note 3.5)	73	165	145
Other social security contributions	1,901	1,910	1,853
Other employee costs	2,087	2,102	2,110
Total employee costs for the year	31,525	30,138	30,956
Employee costs capitalised as intangible assets and property, plant and equipment	(1,500)	(1,435)	(1,258)
Change in employee costs capitalised as inventories	(105)	(91)	(127)
Total employee costs in the income statement	**29,920**	28,612	29,571
Included in the income statement:			
Cost of goods sold	8,164	7,854	7,841
Sales and distribution costs	12,214	11,994	12,447
Research and development costs	6,288	5,848	6,149
Administrative costs	2,755	2,505	2,721
Other operating income, net	499	411	413
Total employee costs in the income statement	**29,920**	28,612	29,571

Average number of full-time employees	42,881	41,665	41,993
Year-end number of full-time employees	42,672	42,076	41,971
Employees (total)	43,202	42,682	42,446

Remuneration to executive management and board of directors

DKK million	2018	2017	2016
Salary and cash bonus	102	74	77
Pension	22	18	20
Benefits[4]	4	6	10
Share-based incentive[5]	22	7	11
Severance payments[1,4]	28	0	66
Executive Management in total[1,2,3]	**178**	105	184
Fee to Board of Directors	17	16	14
Total	**195**	121	198

1. Please refer to 'Remuneration', pp 53–57 (unaudited), for further information.
2. Jesper Brandgaard will retire from Novo Nordisk in April 2019. The 2018 remuneration for Jesper Brandgaard is included in the above table together with a severance payment of DKK 27.7 million. President and CEO Lars Rebien Sørensen retired from Novo Nordisk on 31 December 2016. The 2016 remuneration for Lars Rebien Sørensen is included in the above table together with a severance payment of DKK 65.7 million. EVPs Jerzy Gruhn and Jesper Højland stepped down from Novo Nordisk´s Executive Management in 2016. The 2016 remuneration for Jerzy Gruhn and Jesper Høiland is included in the above table.
3. Total remuneration for registered members of Executive Management and the Board of Directors amounts to DKK 159 million (DKK 90 million in 2017 and DKK 152 million in 2016).
4. Benefits are included in Other employee costs, and severance payments are included in Wages and salaries in the table above.
5. Until 2017 the cost of the programme was expensed when shares were granted as the pool was fixed. From 2017 onwards, the programme will be expensed equally over the grant year and the subsequent 3 years of vesting as the number of shares will be reduced if a participant terminates employment with Novo Nordisk.

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 are 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.

In February 2018, Novo Nordisk A/S disposed of 8.0% of its 25.5% interest in NNIT A/S. Novo Nordisk's 17.5% retained interest is classified as an associate due to the Group's right to appoint a Board member, the high level of trading activity with NNIT A/S in combination with the equity interest. In total, DKK 122 million gain from the sale after deduction of book value of DKK 246 million was recorded as Other operating income in 2018. A total consideration of DKK 368 million was received and recorded in the cash flow statement.

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. Further, it includes adjustments to previous years and changes in provision 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.

Ongoing tax disputes, primarily related to transfer pricing cases, are included as part of deferred tax assets, tax receivables and tax payables.

Management judgement regarding recognition of deferred income tax assets and provision 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 provision 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.

US tax reform
The US tax reform has contributed to a lower tax expense in 2018 compared with 2017 due to the reduction of the US federal tax rate.

In 2017 the re-evaluation of the deferred tax assets as a consequence of new US tax legislation increased the tax expense by DKK 171 million.

Income taxes expensed

DKK million	**2018**	2017	2016
Current tax on profit for the year	10,469	10,562	8,981
Deferred tax on profit for the year	(1,007)	182	3,014
Tax on profit for the year	9,462	10,744	11,995
Current tax adjustments recognised for prior years	(522)	(425)	(3,191)
Deferred tax adjustments recognised for prior years	47	231	1,069
Income taxes in the income statement	**8,987**	10,550	9,873
Current tax on other comprehensive income for the year	—	(2)	(28)
Deferred tax on other comprehensive income for the year	(755)	1,043	(296)
Tax on other comprehensive income for the year, (income)/expense	**(755)**	1,041	(324)

Adjustments recognised for prior years include adjustments caused by events that occurred in the current year related to current and deferred tax for prior years. Such adjustments predominantly arise from tax payments regarding tax disputes and reversal of the associated tax liability recognised in prior years.

DKK million	**2018**	2017	2016
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 with the Danish tax rate (net)	(1.9%)	0.0%	0.2%
Non-taxable income less non-tax-deductible expenses (net)	(0.2%)	0.1%	0.1%
Others, including adjustment of prior years	(1.0%)	(0.4%)	(1.6%)
Effective tax rate	**18.9%**	21.7%	20.7%

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

2.6 Income taxes and deferred income taxes (continued)

Income taxes paid

DKK million	2018	2017	2016
Income taxes paid in Denmark for current year	6,640	6,798	5,506
Income taxes paid outside Denmark for current year	2,376	2,639	2,645
Income taxes paid/ repayments relating to prior years	598	(336)	(5,252)
Total income taxes paid	9,614	9,101	2,899

The income taxes paid relating to prior years include repayments and adjustments arising from tax disputes primarily regarding transfer pricing.

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 company dividends 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 potential withholding tax amounts to DKK 367 million for 2018 (DKK 343 million in 2017).

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	Provisions and other liabilities	Other[2]	Offset within countries	Total
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[1]	—	—	—	—	(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)
2017							
Net deferred tax asset/(liability) at 1 January	(966)	(359)	1,176	2,005	814	—	2,670
Income/(charge) to the income statement	61	(132)	(192)	(182)	32		(413)
Income/(charge) to other comprehensive income	—	—	(151)	(26)	(866)		(1,043)
Income/(charge) to equity[1]	—	—	—	—	17		17
Effect of exchange rate adjustment	37	(9)	—	(139)	(25)		(136)
Net deferred tax asset/(liability) at 31 December	(868)	(500)	833	1,658	(28)	—	1,095
Classified as follows:							
Deferred tax asset at 31 December	237	57	2,194	1,748	318	(2,613)	1,941
Deferred tax liability at 31 December	(1,105)	(557)	(1,361)	(90)	(346)	2,613	(846)

1. Deferred tax related to value adjustment of restricted stock units. In addition, a gain of DKK 10 million (gain of DKK 1 million in 2017) related to current tax have also been charged to equity. The net charge to equity is DKK 5 million (DKK 18 million in 2017).
2. Other mainly includes hedging and tax loss carry-forwards.

Specification of tax loss carry-forwards at 31 December

DKK million	2018	2017
Recognised deferred tax on tax loss carry-forwards	20	24
Unrecognised tax base of tax loss carry-forwards	347	364
Classified as follows:		
Expiry within one year	—	—
Expiry within two to five years	58	16
Expiry after more than five years	289	348

The total tax value of unrecognised tax loss carry-forwards amounts to DKK 90 million in 2018 (DKK 93 million in 2017).

Section 3
Operating assets and liabilities

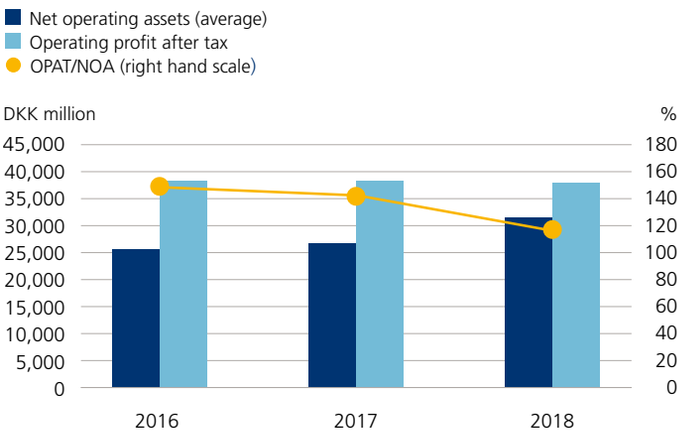
This section presents details of the operating assets that form the basis for the activities of Novo Nordisk, and related liabilities. These net assets impact Novo Nordisk's long-term financial target for `operating profit after tax to net operating assets' (OPAT/NOA); for a definition please refer to pp 95–96 (unaudited).

In line with industry practice, Novo Nordisk does not capitalise internal development costs, which impacts OPAT/NOA. For acquisition of assets in development from third parties, the cost is capitalised as an intangible asset despite the uncertainty of commercial sales arising from its development.

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. Further, being able to deliver products to customers with limited notice is a priority. Consequently, the total production capacity reflects this priority, and the inventory level includes a level of safety stock.

Development of net operating assets
Management believes that a significant factor in the development of net operating assets relates to investments in new production facilities for active pharmaceutical ingredients for diabetes, mainly the facility in Clayton, US. offset by increased provision for sales rebates in the US, presented as provisions under current liabilities in the balance sheet.

Development in operating profit after tax to net operating assets



3.1 Intangible assets

Accounting policies
Patents and licences, including acquired patents and licences 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 is the shorter of the legal duration and the economic useful life, 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 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.

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 therefore 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.

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	**2018**	2017
Patents and licences	3,858	2,095
Software	1,287	1,230
Total intangible assets	**5,145**	3,325

The allocation of the book value of the patents and licences to operating segments is as follows:

DKK million	**2018**	2017
Diabetes and obesity	1,375	743
Biopharmaceuticals	2,483	1,352
Total patents and licences	**3,858**	2,095

3.1 Intangible assets (continued)

Additions
Additions to intangible assets amount to DKK 2,789 million of which DKK 127 million (DKK 112 million in 2017) has not yet been paid. The additions related to patents and licences amounts to DKK 1,403 million (DKK 389 million in 2017) within Diabetes and obesity and DKK 1,165 million (DKK 714 million in 2017) within Biopharmaceuticals. Please refer to note 5.2 Commitment for an overview of total contractual commitments.

In 2017 and 2018 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.

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.

PRV - 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.

Ziylo Ltd
Novo Nordisk has acquired full rights to Ziylo's glucose binding molecule platform to develop glucose responsive insulins.

MB2 LLC and Calibrium LLC
In 2015, Novo Nordisk acquired the two US companies MB2 LLC and Calibrium LLC. Novo Nordisk has capitalised a milestone payment to the sellers of the companies.

Staten Biotechnology B.V.
Novo Nordisk has entered into a collaboration and exclusive option agreement to develop novel therapeutics for the treatment of dyslipidaemia.

2017 additions

MB2 LLC and Callibrium LLC
In 2015, Novo Nordisk acquired the two US companies MB2 LLC and Callibrium LLC. Novo Nordisk has capitalised a milestone payment to the sellers of the companies.

Keros Therapeutics Inc.
Novo Nordisk has entered into a licence agreement with Keros. The agreement also covers a research collaboration to develop ligand traps.

Amortisation and impairment losses
Novo Nordisk did not realise any impairment loss in 2018 (impairment loss amounted to DKK 195 million in 2017) related to patents and licences. All impairments in 2017 were related to the Diabetes and obesity segment.

Intangible assets not yet in use amount to DKK 2,612 million (DKK 1,715 million in 2017), primarily patents and licences in relation to research and development projects. Impairment tests in 2018 and 2017 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	2018	2017
Cost of goods sold	208	193
Sales and distribution costs	15	15
Research and development costs	769	211
Administrative costs	2	3
Other operating income, net	6	5
Total amortisation and impairment losses	1,000	427

3.2 Property, plant and equipment

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:

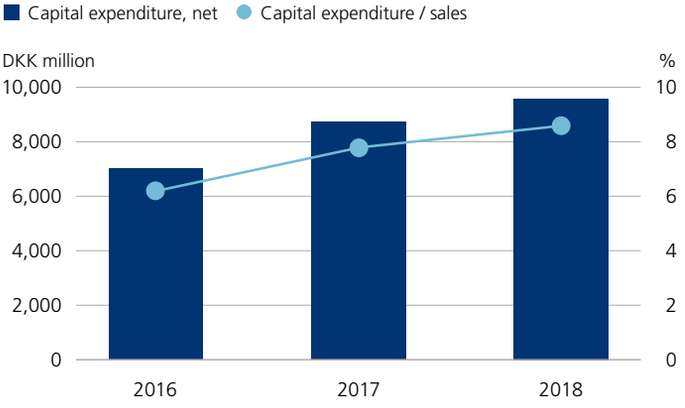
- Buildings: 12-50 years
- Plant and machinery: 5-16 years
- Other equipment: 3-10 years
- Land: not depreciated.

The depreciation commences when the asset is available for use, in other words 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 the 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.

Development in capital expenditure



Capital expenditure in 2018 and 2017 was primarily related to investments in new production facilities for active pharmaceutical ingredients for diabetes, mainly the facility in Clayton, US and Måløv, Denmark. The facilities will also be for tableting and packing oral products.

Further, it 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.

Also, capital expenditures related to expansion of the manufacturing capacity for biopharmaceutical products and the construction of new research facilities in Kalundborg. The facilities will be producing active pharmaceutical ingredients for NovoSeven® and future products for treating haemophilia.

Depreciation and impairment losses

DKK million	2018	2017
Cost of goods sold	2,312	2,091
Sales and distribution costs	69	76
Research and development costs	468	525
Administrative costs	70	57
Other operating income, net	6	6
Total depreciation and impairment losses	2,925	2,755

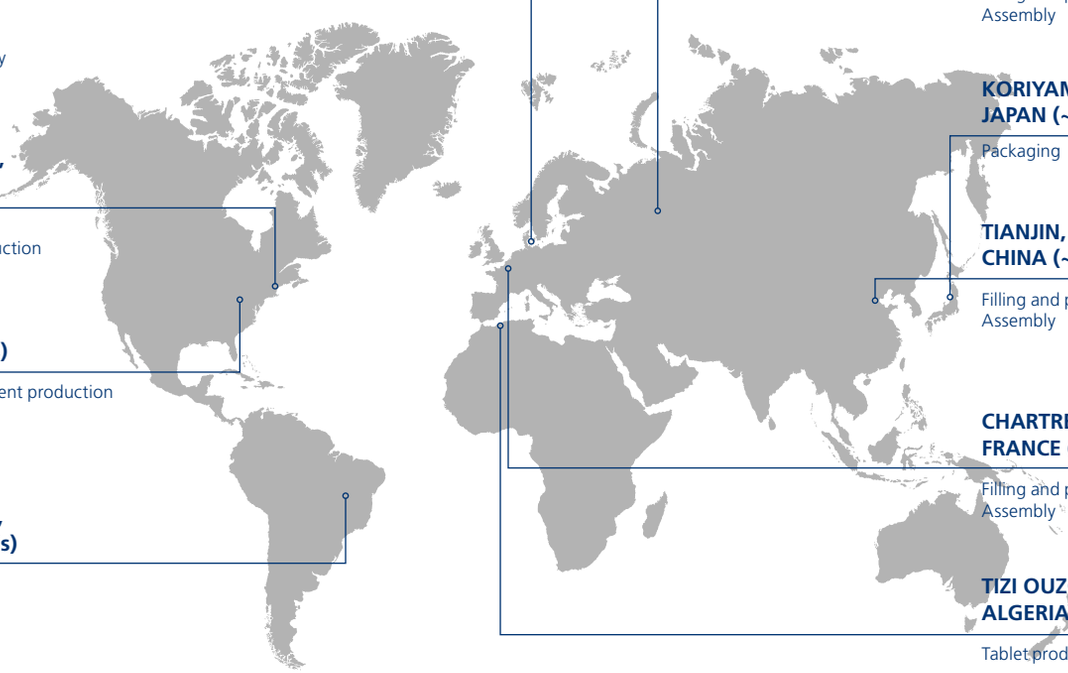
3.2 Property, plant and equipment (continued)

Property, plant and equipment

DKK million	Land and buildings	Plant and machinery	Other equipment	Assets under construction	Total
2018					
Cost at the beginning of the year	22,032	23,799	4,469	14,361	64,661
Additions during the year[1]	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**
2017					
Cost at the beginning of the year	20,190	23,165	4,130	10,539	58,024
Additions during the year	895	502	263	7,028	8,688
Disposals during the year	(133)	(367)	(186)	—	(686)
Transfer from assets under construction	1,516	964	401	(2,881)	—
Effect of exchange rate adjustment	(436)	(465)	(139)	(325)	(1,365)
Cost at the end of the year	22,032	23,799	4,469	14,361	64,661
Depreciation and impairment losses at the beginning of the year	8,182	17,079	2,584	—	27,845
Depreciation for the year	964	1,340	334	—	2,638
Impairment losses for the year	54	47	16	—	117
Depreciation and impairment losses reversed on disposals during the year	(100)	(343)	(178)	—	(621)
Effect of exchange rate adjustment	(166)	(315)	(84)	—	(565)
Depreciation and impairment losses at the end of the year	8,934	17,808	2,672	—	29,414
Carrying amount at the end of the year	13,098	5,991	1,797	14,361	35,247

1. Invoices and accruals related to additions for property, plant and equipment that have not yet been paid amount to DKK 1,893 million (DKK 1,992 million in 2017).

GLOBAL PRODUCTION SETUP



DENMARK (~8,850 FTE´s)
Diabetes and biopharmacetutical active ingredient production
Filling and packaging
Moulding and assembly
Tablet production

NEW HAMPSHIRE, USA (~190 FTE´s)
Biopharmaceutical active ingredient production

CLAYTON, NC, USA (~1,210 FTE´s)
Diabetes active ingredient production
Filling and packaging
Assembly

MONTES CLAROS, BRAZIL (~990 FTE´s)
Filling and packaging
Assembly

KALUGA, RUSSIA (~270 FTE´s)
Filling and packaging
Assembly

KORIYAMA, JAPAN (~70 FTE´s)
Packaging

TIANJIN, CHINA (~1,060 FTE´s)
Filling and packaging
Assembly

CHARTRES, FRANCE (~1,170 FTE´s)
Filling and packaging
Assembly

TIZI OUZOU, ALGERIA (~220 FTE´s)
Tablet production

Global production setup is unaudited and does not form part of the consolidated financial statements.

3.3 Inventories

Accounting policies
Inventories are stated at the lower of cost and net realisable value. 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 (pre-launch 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.

Key accounting estimate of indirect production costs capitalised
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 and biopharmaceutical 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	2018	2017
Raw materials	2,464	2,420
Work in progress	11,753	10,992
Finished goods	4,078	4,180
Total inventories (gross)	18,295	17,592
Write-downs at year-end	(1,959)	(2,219)
Total inventories (net)	**16,336**	15,373
Indirect production costs included in work in progress and finished goods	8,533	7,768
Share of total inventories (net)	52%	51%
Movements in inventory write-downs		
Write-downs at the beginning of the year	2,219	1,358
Write-downs during the year	509	1,556
Utilisation of write-downs	(409)	(438)
Reversal of write-downs	(360)	(257)
Write-downs at the end of the year	1,959	2,219

All write-downs in both 2017 and 2018 results in the fully impaired inventory.

3.4 Trade receivables

Accounting policies
Trade receivables are recognised initially 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.

Key accounting estimate of allowance for doubtful trade receivables
Novo Nordisk's customer base comprises government agencies, wholesalers, retail pharmacies, Managed Care and other customers. From 1 January 2018 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. This has not resulted in a material change in loss allowance compared with previous policy. 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 4.2 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. Instability and sharp currency depreciation are impacting the political climate in countries such as Russia, Iran and Argentina. Novo Nordisk is monitoring these developments closely. Payment history as well as current economic conditions and indicators 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 4.2 and 4.7 for the trade receivable programmes.

Trade receivables

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**

DKK million 2017	Gross carrying amount	Loss allowance	Net carrying amount
Not yet due	19,592	(558)	19,034
1-90 days	1,065	(155)	910
91-180 days	298	(113)	185
181-270 days	111	(75)	36
271-360 days	95	(95)	—
More than 360 days past due	298	(298)	—
Trade receivables	21,459	(1,294)	20,165

Movements in allowance for doubtful trade receivables	2018	2017
Carrying amount at the beginning of the year	1,294	1,223
Reversal of allowance on realised losses	(25)	(27)
Net movement recognised in income statement	164	196
Effect of exchange rate adjustment	(63)	(98)
Allowance at the end of the year	**1,370**	1,294

Total realised losses in 2018 amount to DKK 25 million (DKK 27 million in 2017).

3.5 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. The plan in the US is structured as a post-retirement healthcare plan covering all employees. From 2012, this plan was frozen such that it no longer credited future service or admitted new participants, and a new defined contribution plan was established covering all employees in the US.

The defined benefit plans for Germany cover all employees employed before November 2003. Obligations relating to employees employed after 2003 are covered by a defined contribution plan.

In Switzerland, the employee pension scheme is set up as a combined defined benefit and defined contribution plan, and is mandatory. 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.

The plan in Japan covers all employees and is set up as a combined defined benefit and defined contribution plan.

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. Novo Nordisk manages the allocation and investment of pension plan assets with the purpose of meeting the long-term objectives.

The Group's defined benefit plans are pension plans and medical plans and are usually funded by payments from Group companies and by employees to funds independent of Novo Nordisk. Where a plan is unfunded, a liability for the retirement benefit obligation is recognised in the balance sheet. Costs recognised for retirement benefits are included in Cost of goods sold, Sales and distribution costs, Research and development costs, and Administrative costs.

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

Retirement benefit obligations

DKK million	US	Germany	Switzerland	Japan	Other	**2018 total**	2017 total
At the beginning of the year	448	926	283	393	428	2,478	2,611
Current service costs	17	30	22	28	42	139	141
Past service costs and settlements	(67)	—	(2)	(13)	(8)	(90)	(45)
Interest costs	14	17	2	2	8	43	40
Remeasurement (gains)/losses[1]	(32)	(34)	(7)	(10)	7	(76)	(79)
Plan participant contributions etc.	—	—	8	—	5	13	12
Benefits paid to employees	(17)	(7)	(26)	(29)	(9)	(88)	(66)
Effect of exchange rate adjustment	23	3	12	28	3	69	(136)
At the end of the year	386	935	292	399	476	**2,488** [2]	2,478
Fair value of plan assets							
At the beginning of the year	—	525	197	316	104	1,142	1,160
Interest income	—	10	2	1	4	17	12
Settlements	—	—	—	—	—	—	(43)
Remeasurement gains/(losses)[1]	—	13	(1)	(6)	5	11	24
Employer contributions	17	16	19	25	24	101	96
Plan participant contributions etc	—	—	7	—	8	15	14
Benefits paid to employees	(17)	(7)	(26)	(29)	(9)	(88)	(66)
Effect of exchange rate adjustment	—	2	8	23	1	34	(55)
At the end of the year	—	559	206	330	137	**1,232**	1,142
Net retirement benefit obligations at the end of the year	386	376	86	69	339	**1,256**	1,336

1. Net remeasurement is a gain of DKK 87 million (gain of DKK 103 million in 2017), primarily related to changes in financial assumptions, and is included in other comprehensive income.
2. The present value of partly funded retirement benefit obligations amounts to DKK 1,841 million (DKK 1,778 million in 2017). The present value of unfunded retirement benefit obligations amounts to DKK 647 million (DKK 700 million in 2017).

Key assumptions used for valuation

Discount rate	4.3%	2.0%	1.0%	0.8%	2.4%	**2.1%**	1.8%
Future remuneration	N/A	2.3%	1.8%	3.0%	2.9%	**2.5%**	2.3%

3.5 Retirement benefit obligations (continued)

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.

DKK million	1 %-point increase	1 %-point decrease
2018		
Discount rate (decrease)/increase	(369)	458
Future remuneration growth (decrease)/increase	99	(89)
2017		
Discount rate (decrease)/increase	(375)	463
Future remuneration growth (decrease)/increase	105	(95)

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

3.6 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]	**2018 total**	2017 total
At the beginning of the year	20,216	1,781	847	1,213	24,057	23,831
Additional provisions, including increases to existing provisions	82,315	73	439	510	83,337	65,213
Amount used during the year	(78,539)	(8)	(388)	(308)	(79,243)	(61,976)
Adjustments, including unused amounts reversed during the year	386	(24)	(38)	(10)	314	(406)
Effect of exchange rate adjustment	1,016	38	9	25	1,088	(2,605)
At the end of the year	25,394	1,860	869	1,430	**29,553**	24,057
Non-current liabilities[2]	—	1,860	320	1,212	3,392	3,302
Current liabilities	25,394	—	549	218	26,161	20,755

1. Other provisions consist of various types of provision, including obligations in relation to employee benefits such as jubilee benefits, company-owned life insurance etc. Assets offsetting obligations related to company-owned life insurance are presented as part of Other financial assets.
2. For non-current liabilities, provisions for product returns will be utilised in 2020 and 2021. In the case of provisions for legal disputes, the timing of settlement cannot be determined.

3.6 Provisions and contingent liabilities (continued)

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 USA, is a defendant in product liability lawsuits related to use of incretin-based medications. To date, 290 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.187 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. In November 2015, all pancreatic cancer cases pending in the California federal and state courts were dismissed on federal preemption grounds. Plaintiffs subsequently appealed these rulings to the federal and California state appeals courts. In November 2017, the U.S. Court of Appeals for the Ninth Circuit reversed and vacated the Federal District Court Judge's ruling, thereby reinstating the dismissed federal lawsuits and sending them back to the Federal District Court in California for further proceedings. In November 2018, the California Court of Appeal issued a similar ruling, thus sending the California state court cases back to state trial court for further proceedings. Currently, Novo Nordisk does not have any individual trials scheduled in 2019. 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 Depository 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 pharmacy benefit managers, and made other materially misleading statements to potential investors. On 16 August 2018, the court denied Novo Nordisk's Motion to Dismiss the case. Hence, the case will now proceed into discovery. Novo Nordisk does not expect the litigation to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

Since January 2017, ten pricing-related class action lawsuits have been brought against Novo Nordisk, Sanofi, Eli Lilly and in some cases certain Pharmacy Benefit Managers 'PBMs' on behalf of classes of U.S. purchasers of diabetes products. Five of these lawsuits have been consolidated into one matter pending in the United States District Court for the District of New Jersey and one has been voluntarily dismissed without prejudice. The other four lawsuits are also pending as separate matters in the same Federal Court in New Jersey. All pending matters allege that the manufacturers and 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
In March 2016, the United States Department of Justice ("DOJ") served Novo Nordisk with a Civil Investigative Demand ("CID") calling for the production of documents and information regarding Novo Nordisk's haemophilia-related patient support programmes, as well as information relating to the marketing and promotion of NovoSeven®RT. The investigation is being conducted by DOJ in conjunction with the U.S. Attorney's Office for the Western District of Oklahoma. Furthermore, two CIDs from the Washington State Attorney General's ("WAG") office have been served on Novo Nordisk in 2014 and 2016, each calling for the production of documents and information regarding Novo Nordisk's haemophilia-related patient support programme, SevenSECURE®, as well as information relating to the marketing and promotion of NovoSeven®RT. The WAG has decided to cease further investigation under its CIDs and defer to the related investigation being conducted by the DOJ under its March 2016 CID. Novo Nordisk continues to cooperate with the DOJ and the U.S. Attorneys' Office in this investigation. Novo Nordisk does not expect the investigation to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

In March 2016, the US Attorney's Office for the Southern District of New York served Novo Nordisk with a Civil Investigative Demand calling for the production of documents and information regarding Novo Nordisk's contracts and business relationships with Pharmacy Benefit Managers concerning NovoLog®, Novolin® and Levemir®. Novo Nordisk is cooperating with the U.S. Attorney's Office in this investigation. Novo Nordisk does not expect the investigation to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

On 18 January 2017, the Minnesota State Attorney General's Office served Novo Nordisk with a Civil Investigative Demand calling for the production of documents and information relating to pricing and trade practices for Novo Nordisk's long acting insulin products, including Levemir® and Tresiba®, from 1 January 2008 through the present date. On 16 October 2018, the state of Minnesota filed a lawsuit in the United States District Court for the District of New Jersey against Novo Nordisk, Sanofi, and Eli Lilly alleging that the manufacturers and certain 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. The complaint also includes Minnesota state law claims for consumer fraud, deceptive trade practices, false advertising, and unjust enrichment. Novo Nordisk does not expect the lawsuit to have a material impact on Novo Nordisk's financial position, operating profit or cash flow. In light of the lawsuit, Novo Nordisk considers its response to the Minnesota Attorney General's Civil Investigative Demand to be concluded.

On 7 March 2017, the Washington Attorney General's Office served Novo Nordisk with a Civil Investigative Demand calling for the production of documents and information relating to pricing and trade practices for Novo Nordisk's insulin products, including Levemir®, NovoLog®, and Novolin®, from 1 January 2005 through the present date. Novo Nordisk is cooperating with the Washington State Attorney General in this investigation. Novo Nordisk does not expect the investigation to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

On 26 April 2017, the New Mexico Attorney General's Office served Novo Nordisk with a Civil Investigative Demand calling for the production of documents and information regarding the trade practice and pricing of Novo Nordisk's insulin products, namely NovoLog® and Novolin®, for the period of 1 January 2012 through the present date. Novo Nordisk is cooperating with the New Mexico Attorney General in this investigation. Novo Nordisk does not expect the investigation to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

On 14 January 2019, Novo Nordisk was one of several pharmaceutical companies that received a request for information involving pricing practices from United States Representative Elijah Cummings, Chair of the United States House of Representatives Committee on Oversight and Reform. The Company will be cooperating with the Committee and will respond to the requests set forth in the Committee's letter. Novo Nordisk does not expect this inquiry to have a material impact on Novo Nordisk's financial position, operating profit or cash flow.

On 30 January 2019, Novo Nordisk was one of three pharmaceutical companies that received a request for information involving insulin pricing practices from United States Representatives Frank Pallone, Jr. and Diana DeGette, Chairs of the United States House of Representatives Committee on Energy and Commerce and Subcommittee on Oversight and Investigations, respectively. The Company will be cooperating with the Committee and will respond to the requests set forth in the Committee's letter. Novo Nordisk does not expect this inquiry 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.

3.7 Other liabilities

Other liabilities

DKK million	2018	2017
Employee costs payable	6,582	5,617
Sales rebates payable	1,660	1,528
Healthcare fees payable	473	990
VAT and duties payable	433	1,182
Payables regarding clinical trials	458	402
Payables regarding promotion activities	404	325
Rent and leases payable	321	300
Legal and consultancy costs payable	208	164
Trade payable to associated company	150	223
Payables related to non-current assets	2,020	2,104
Other payables	1,389	1,611
Total other liabilities	**14,098**	14,446

Section 4
Capital structure and financial items

This section provides an insight into Novo Nordisk's capital structure, earnings per share, free cash flow and financing items. The free cash flow impacts Novo Nordisk's long-term financial target for 'Cash to earnings (three-year average)'. Cash to earnings is defined as 'free cash flow as a percentage of net profit'. 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 e.g. dividends, share repurchases and repayment of debt (excl. lease liability repayments) or for retaining in the business to fund future growth.

Novo Nordisk has a low debt-to-equity ratio due to limited debt financing. Further information on the company's capital structure can be found in `Shares and capital structure' on pp 44–45 (unaudited).

Management considers foreign exchange exposure to be one of the main financial risks. Novo Nordisk aims to reduce the short-term impact from movements in key currencies by hedging future cash flows. Notes 4.2 and 4.3 include more information in this respect.

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 2014	107	423	530
Cancelled in 2015	—	(10)	(10)
Cancelled in 2016	—	(10)	(10)
Cancelled in 2017	—	(10)	(10)
Share capital at the beginning of the year	107	393	500
Cancelled in 2018	—	(10)	(10)
Share capital at the end of the year	107	383	**490**

At the end of 2018, the share capital amounted to DKK 107 million in A share capital (equal to 537 million A shares of DKK 0.20) and DKK 383 million in B share capital (equal to 1,913 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 2018. The net cash distribution to shareholders in the form of dividends and share repurchases amounts to DKK 34.6 billion, compared with a free cash flow of DKK 32.5 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	**2018**	2017	2016
Interim dividend for the year	7,238	7,396	7,600
Dividend for prior year	11,810	11,448	16,230
Share repurchases for the year	15,567	16,845	15,057
Total	**34,615**	35,689	38,887

The total dividend for 2018 amounts to DKK 19,547 million (DKK 8.15 per share). At the end of 2018, a final dividend of DKK 12,309 million (DKK 5.15 per share) is expected to be distributed pending approval at the Annual General Meeting. The interim dividend of DKK 7,238 million (DKK 3.00 per share) was paid in August 2018. The total dividend for 2017 was DKK 19,206 million (DKK 7.85 per share), of which the final dividend of DKK 11,810 million (DKK 4.85 per share) was paid in March 2018. 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 is considered to have been fully distributed. As at 31 December 2018, distributable reserves total DKK 38,816 million (2017: DKK 33,127 million), corresponding to the parent company's retained earnings.

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

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.

				2018	2017
	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	18,579	2.2%		56	46
Cancellation of treasury shares	(16,725)	(2.0%)		(50)	(50)
Transfer regarding restricted stock units	(200)			(1)	—
Purchase during the year	15,567			51	60
Value adjustment	(611)			—	—
Holding at the end of the year	16,610		2.3%	**56**	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.

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 applies a pharmaceutical industry payout ratio to dividend payments, which are complemented by share repurchase programmes.

The purchase of treasury shares during the year relates to the remaining part of the 2017 share repurchase programme totalling DKK 1.7 billion and the DKK 15 billion Novo Nordisk B share repurchase programme for 2018, of which DKK 1.2 billion was outstanding at year-end. The programme ended on 30 January 2019. 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' on p 95 for a description of calculation of the dilutive effect.

DKK million		2018	2017	2016
Net profit for the year		38,628	38,130	37,925
Average number of shares outstanding	in 1,000 shares	2,419,603	2,473,218	2,529,945
Dilutive effect of average outstanding share pool[1]	in 1,000 shares	4,814	4,875	4,784
Average number of shares outstanding, including dilutive effect of outstanding share pool	in 1,000 shares	2,424,417	2,478,093	2,534,729
Basic earnings per share	DKK	**15.96**	15.42	14.99
Diluted earnings per share	DKK	**15.93**	15.39	14.96

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

4.2 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 an 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, GBP and CAD. 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 2018, the hedging horizon varied between 6 and 13 months for USD, CNY, JPY, GBP and CAD. Currency hedging is based on expectations of future exchange rates and mainly uses 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 2018, 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:

	2018	2017
USD	11 months	12 months
CNY[1]	6 months	6 months
JPY	12 months	12 months
GBP	11 months	13 months
CAD	9 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	**2018**	2017	2016
USD			
Average	631	660	673
Year-end	652	621	706
Year-end change	5.1%	(12.0%)	3.4%
CNY			
Average	95	98	101
Year-end	95	95	102
Year-end change	(0.3%)	(6.9%)	(2.9%)
JPY			
Average	5.72	5.88	6.21
Year-end	5.91	5.51	6.03
Year-end change	7.3%	(8.6%)	6.3%
GBP			
Average	842	849	911
Year-end	827	839	869
Year-end change	(1.4%)	(3.5%)	(14.0%)
CAD			
Average	487	508	508
Year-end	479	495	524
Year-end change	(3.2%)	(5.5%)	6.5%

Foreign exchange sensitivity analysis:
A 5% immediate increase/decrease in the following currencies versus EUR and DKK would impact Novo Nordisk's operating profit as outlined in the table below:

	Estimated for	
DKK million	**2019**	2018
USD	2,000	1,900
CNY	350	325
JPY	160	170
GBP	85	90
CAD	90	80

4.2 Financial risks (continued)

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
2018		
Other comprehensive income	(1,988)	1,988
Income statement	115	(115)
Total	**(1,873)**	**1,873**
2017		
Other comprehensive income	(1,994)	2,098
Income statement	210	(255)
Total	(1,784)	1,843

A 5% depreciation of USD against all other currencies at 31 December 2018 would affect equity by DKK 1,604 million (2017: DKK 1,707 million) and the income statement by DKK 157 million (2017: DKK 52 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, foreign exchange forwards and foreign exchange options at year-end. Anticipated currency transactions, investments and non-current assets are not included.

Interest rate risk
Novo Nordisk has no significant exposure to interest rate risk as it does not hold any 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 15,842 million (2017: DKK 21,156 million). In addition, Novo Nordisk considers its maximum credit exposure to Trade receivables, Other receivables less prepayments and Other financial assets to be DKK 26,018 million (2017: DKK 22,602 million). Please refer to note 4.7 for details of the Group's total financial assets.

To manage credit risk on 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 split into Cash at bank and Derivative financial instruments (market value)

DKK million	Cash at bank	Derivative financial instruments	Total
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**
2017			
AA-range	12,369	935	13,304
A-range	5,967	1,369	7,336
BBB-range	438		438
Not rated or below BBB-range	78		78
Total	18,852	2,304	21,156

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 the larger part of total net sales, cf. note 2.2. However, US wholesaler credit ratings are monitored and a large part of the trade receivables are sold on full non-recourse terms, cf. below. 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 3.4 for the description of the loss allowance for the Group and the aging 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 amounting to:

DKK million	**2018**	2017	2016
US	3,587	3,328	2,754
Japan	1,937	2,024	2,259

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.

4.3 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 minor extent currency options to hedge forecast transactions, assets and liabilities. The overall policy is to hedge the majority of total currency exposure.

Currently, net investments in foreign subsidiaries are 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.

Hedging activities	2018			2017		
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]	29,951	21	1,555	33,273	1,664	8
Forward contracts CNH, JPY, GBP and CAD	7,462	23	166	7,677	222	37
Forward contracts, cash flow hedges	37,413	44	1,721	40,950	1,886	45
Currency options USD	—	—	—	2,152	180	—
Currency options JPY	—	—	—	112	6	—
Currency options, cash flow hedges	—	—	—	2,264	186	—
Forward contracts USD	9,145	123	256	11,519	260	239
Forward contracts CNH, CAD, EUR and GBP	3,268	37	47	2,680	120	25
Forward contracts, fair value hedges	12,413	160	303	14,199	380	264
Time value of currency options (hedge accounting not applied)[2]	—	—	—	—	34	—
Currency options GBP (hedge accounting not applied)	—	—	—	125	1	—
Total hedging activities	**49,826**	**204**	**2,024**	57,538	2,487	309
Recognised in the income statement		160	303		415	264
Recognised in other comprehensive income[3]		44	1,721		2,072	45
Presented in the balance sheet as:						
Derivative financial instruments (current assets/liabilities)		204	2,024		2,304	309
Cash at bank		—			183	

1. Average hedge rate for USD cash flow hedges is 610 at the end of 2018 and 644 at the end of 2017.
2. With the implementation of IFRS 9, hedge accounting is applied to time value of currency options from 1 January 2018. There are no open options at 31 December 2018.
3. Realisation in 2018 of previously deferred gains amounts to DKK 2,027 million. Furthermore, an additional loss of DKK 1,677 million as of 31 December 2018 has been deferred for realisation in 2019.

4.3 Derivative financial instruments (continued)

The above financial contracts regarding cash flow hedging are expected to impact the income statement within the periods shown below. The split is based on an estimate of when the cash flow hedges are expected to be reclassified to fair value hedges with the fair value then being transferred to Financial income or Financial expenses. The cash flow impact is an immediate consequence of the reclassification (note 4.8).

	2018		2017	
DKK million	Positive fair value at year-end	Negative fair value at year-end	Positive fair value at year-end	Negative fair value at year-end
Expected timing of income statement impact				
0–12 months	44	1,721	2,072	45
More than 12 months	—	—	—	—
Total cash flow hedges for which hedge accounting is applied	**44**	**1,721**	2,072	45

4.4 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. Further, the change in working capital is 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 consist 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 2018 includes DKK 120 million that is restricted. The restricted cash balance relates to subsidiaries, where availability of currency for remittance of funds is temporarily scarce.

DKK million	2018	2017	2016
Cash and cash equivalents			
Cash at bank (note 4.2)	15,638	18,852	18,690
Current debt (bank overdrafts)[1]	(9)	(1,694)	(229)
Cash and cash equivalents	**15,629**	17,158	18,461
Financial resources			
Cash and cash equivalents	15,629	17,158	18,461
Marketable securities	—	—	2,009
Undrawn committed credit facility[2]	11,574	8,190	8,178
Current debt (bank overdrafts)[1]	(506)	—	—
Financial resources[3]	**26,697**	25,348	28,648

1. Cash and cash equivalents at the beginning of the year has been adjusted for a DKK 412 million bank loan reclassified to financing activities. At 31 December 2018 bank loans classified as financing activities totalled DKK 506 million (2017: DKK 412 million).
2. The undrawn committed credit facility in 2018 is a EUR 1,550 million facility (EUR 1,100 million in 2017 and EUR 1,100 million in 2016) committed by a portfolio of international banks. The facility matures in 2023.
3. Additional non-IFRS financial measure; please refer to pp 95–96 for definition.

Free cash flow

DKK million	2018	2017	2016
Net cash generated from operating activities	44,616	41,168	48,314
Net cash used in investing activities	(12,080)	(6,571)	(6,790)
Net purchase of marketable securities	—	(2,009)	(1,533)
Free cash flow[4]	**32,536**	32,588	39,991

4. Additional non-IFRS financial measure; please refer to pp 95–96 for definition.

4.5 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	2018	2017	2016
Inventories	(963)	(1,032)	(1,583)
Trade receivables	(2,621)	69	(4,749)
Other receivables and prepayments	(662)	(17)	(154)
Trade payables	1,146	(401)	1,084
Other liabilities	(348)	265	1,526
Adjustment for payables related to non-current assets	84	(1,143)	—
Change in working capital before exchange rate adjustments	**(3,364)**	(2,259)	(3,876)
Exchange rate adjustments	(6)	(1,375)	168
Cash flow change in working capital	**(3,370)**	(3,634)	(3,708)

4.6 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	2018	2017	2016
Reversals of non-cash income statement items			
Interest income and interest expenses, net (note 4.8)	34	21	13
Capital gain/(loss) on investments, net etc (note 4.8)	(163)	25	(16)
Result of associated company (note 4.8)	(12)	(14)	(24)
Share-based payment costs (note 5.1)	414	292	368
Income from the partial divestment of associated company	(122)	—	—
Changes in non-cash balance sheet items			
Increase/(decrease) in provisions (note 3.6)	5,496	226	4,007
Increase/(decrease) in retirement benefit obligations (note 3.5)	(80)	(115)	265
Remeasurements of retirement benefit obligations (note 3.5)	87	103	(205)
Other adjustments			
Exchange rate adjustments on working capital (note 4.5)	6	1,375	(168)
Other, primarily exchange rate adjustments	438	114	(358)
Total other non-cash items	**6,098**	2,027	3,882

4.7 Financial assets and liabilities

Accounting policies

The implementation of IFRS 9 'Financial instruments', has had the effect that financial assets are classified into new categories based on the characteristics of the instrument. The change of categories has not meant changes in measurement compared to the policies applied before 1 January 2018, other than for fair value adjustments relating to minor shareholdings and measurement of trade receivables in factoring portfolios. Please refer to note 1.2 for a general description of changes in accounting policies and disclosures.

From 1 January 2018, Novo Nordisk's investments in minor shareholdings are measured and classified as fair value through the income statement. Prior to adoption of IFRS 9, minor shareholdings were classified as available for sale under which 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.

For derivatives there is no change to classification or measurement.

Cash at bank previously classified as cash and cash equivalents will henceforth be classified as financial assets at amortised cost, with no change to measurement.

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. 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 consist of bank overdrafts, trade payables and other liabilities.

4.7 Financial assets and liabilities (continued)

Financial assets by category

DKK million	2018	2017
Financial assets at fair value through the income statement	**969**	2,304
Other financial assets[1,2]	765	—
Derivate financial instruments (note 4.3)	204	2,304
Financial assets at amortised cost[3]	**28,340**	40,399
Other financial assets[1]	477	567
Trade receivables (note 3.4)[4]	11,188	20,165
Other receivables	3,090	2,428
- less prepayments and VAT receivables	(2,053)	(1,613)
Cash at bank (note 4.4)	15,638	18,852
Financial assets at fair value through OCI	**11,598**	411
Trade receivables in a factoring portfolio (note 3.4)[4]	11,598	—
Other financial assets[2]	—	411
Total financial assets at the end of the year by category[1]	**40,907**	43,114

1. Financial assets with the exception of Other financial assets are all due within one year. Other financial assets at amortised cost include DKK 377 million which are due in more than 5 years (2017: DKK 473 million). Other financial assets measured at fair value through the income statement are minor shareholdings.
2. Classified as available for sale in 2017 relates to minor shareholdings, which in 2017 were measured at fair value through other comprehensive income and, from 1 January 2018, are measured at fair value through the income statement.
3. Classified as loans and receivables in 2017, also measured at amortised cost.
4. With the implementation of IFRS 9, trade receivables in geographies which utilise factoring have been reclassified from trade receivables measured at amortised cost to trade receivables in a factoring portfolio. The amount reclassified on 1 January 2018 was DKK 9,168 million. Trade receivables at 31 December 2018 (note 3.4) includes DKK 11,598 million which are measured at fair value through OCI, which have no associated loss allowance (1 January 2018: DKK 0 million).

Financial liabilities by category

DKK million	2018	2017
Financial liabilities measured at fair value through the income statement	**2,024**	309
Derivative financial instruments (note 4.3)	2,024	309
Financial liabilities measured at amortised cost	**20,936**	20,568
Current debt	515	1,694
Trade payables	6,756	5,610
Other liabilities (note 3.7)	14,098	14,446
- less VAT and duties payable (note 3.7)	(433)	(1,182)
Total financial liabilities at the end of the year by category[1]	**22,960**	20,877

1. All financial liabilities are due within one year.

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 4.2 and 4.3.

Fair value measurement hierarchy

DKK million	2018	2017
Active market data	649	338
Directly or indirectly observable market data	204	2,304
Not based on observable market data[1]	11,714	73
Total financial assets at fair value	**12,567**	2,715
Active market data	—	—
Directly or indirectly observable market data	2,024	309
Not based on observable market data	—	—
Total financial liabilities at fair value	**2,024**	309

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 have not been any transfers between the categories 'Active market data' and 'Directly or indirectly observable market data' during 2018, 2017 or 2016. There are no intangible assets or items of property, plant and equipment measured at fair value.

4.8 Financial income and expenses

Accounting policies
As described in note 4.2, management has chosen to classify the result of hedging activities as part of financial items in the income statement. Financial items are primarily related 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. Further, 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	2018	2017	2016
Interest income[1]	51	69	52
Foreign exchange gain (net)[2]	—	1,163	—
Financial gain from forward contracts (net)	1,656	—	—
Financial gain from currency options (net)	152	—	—
Capital gain on investments etc	251	—	16
Result of associated company	12	14	24
Total financial income	**2,122**	1,246	92

Financial expenses

DKK million	2018	2017	2016
Interest expenses[1]	85	90	65
Foreign exchange loss (net)[2]	1,510	—	335
Financial loss from forward contracts (net)	—	1,346	158
Financial loss from currency options (net)	—	4	83
Capital loss on investments etc	88	25	—
Other financial expenses	72	68	85
Total financial expenses	**1,755**	1,533	726

1. Total Interest income and expenses is on financial assets and liabilities measured at amortised cost.
2. Primarily related to trade receivables, other receivables and trade payables.

Financial impact from forward contracts and currency options, specified

DKK million	2018	2017	2016
Forward contracts			
Income/(loss) transferred from other comprehensive income	1,841	(2,016)	(705)
Value adjustment of transferred contracts	(1,299)	2,477	62
Unrealised fair value adjustments of forward contracts	(143)	116	(85)
Realised foreign exchange gain/(loss) on forward contracts	1,257	(1,923)	570
Financial income/(expense) from forward contracts	**1,656**	(1,346)	(158)
Currency options			
Realised income/(loss) transferred from other comprehensive income	186	61	23
Value adjustment of transferred options	(3)	(9)	—
Foreign exchange gain/(loss) on currency options	(31)	(56)	(106)
Financial income/(expense) from currency options	**152**	(4)	(83)

Section 5
Other disclosures

This section provides details on notes that are statutory or by their nature of secondary importance for understanding the financial performance of Novo Nordisk. A list of subsidiaries in the Novo Nordisk Group is also included here.

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	**2018**	2017	2016
Restricted stock units to employees	204	169	245
Long-term share-based incentive programme (Management Board)[1, 2]	48	19	29
Long-term share-based incentive programme (management group below Management Board)[3]	145	102	94
Shares allocated to individual employees	17	2	—
Share-based payment expensed in the income statement	**414**	292	368

1. The expense for 2017 and 2018 reflects the value at launch (adjusted for expected dividend) of the programme, amortised over four years. The expense for 2016 reflects the full value of the programme (adjusted for expected dividend) for the year, as vesting conditions were met.
2. The programme includes payments to former members of the Management Board at a total value of DKK 3 million (DKK 3 million in 2017 and DKK 3 million in 2016).
3. The expense for the year reflects the value at launch (adjusted for expected dividend) of the last four programmes, amortised over four years.

Restricted stock units to employees

To commemorate the Group's net sales passing DKK 100 billion for the first time in 2015, as of 1 January 2016, all employees in the company (excluding NNE A/S) were offered 50 restricted stock units. A restricted stock unit gives the holder the right to receive one Novo Nordisk B share free of charge in February 2019 subject to continued employment. The cost of the DKK 508 million programme is amortised over the vesting period.

Long-term share-based incentive programme

For a description of the programme, please refer to 'Remuneration' in 'Governance, leadership and shares', pp 53–57 (unaudited).

Management Board

On 31 January 2019, the Board of Directors approved the allocation of a total of 411,090 Novo Nordisk B shares to the members of Management Board for the 2018 financial year. The value at launch of the programme (adjusted for expected dividends) was DKK 115 million. On average, this corresponds to 12.6 months' fixed base salary plus pension contribution for the CEO, 9.4 months' fixed base salary plus pension contribution per Executive Vice President as of 1 March 2018 and 7.0 months' fixed base salary for Senior Vice Presidents. The cost of the 2018 programme is amortised over the vesting period 2018-2021 at an annual amount of DKK 29 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 2018, and the share price used for the determining the grant date fair value of the award was the average share price (DKK 304) for Novo Nordisk B shares on Nasdaq Copenhagen in the period 1-15 February 2018, adjusted for expected dividend. Based on the split of participants when the share allocation was decided, 51% of the allocated shares will be allocated to members of Executive Management and 49% to other members of the Management Board.

The shares allocated to the joint pool for 2015 were released to the individual participants subsequent to approval of the 2018 Annual Report by the Board of Directors and after the announcement of the 2018 full-year financial results on 31 January 2019. The shares allocated correspond to a value at launch of the programme of DKK 108 million, expensed in 2015.

Management group below Management Board

The management group below the Management Board has a share-based incentive programme with similar performance criteria. For 2018, a total of 1,114,455 shares were allocated to this group, corresponding to a value at launch of the programme (adjusted for expected dividends) of DKK 312 million. The cost of the 2018 programme is amortised over the vesting period 2018-2021 at an annual amount of DKK 78 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 2015 were released to the individual participants subsequent to approval of the 2018 Annual Report by the Board of Directors and after the announcement of the 2018 full-year financial results on 31 January 2019. The shares allocated correspond to a value at launch of the programme of DKK 251 million amortised over the period 2015-2018. The number of shares to be transferred (667,573 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		
	2018	2017	2016	**2018**	2017	2016	**2018**	2017	2016
Number of shares awarded in the year	—	—	1,465,411	411,090	356,195	96,705	1,114,455	761,826	224,055
Value per share at launch (DKK)	—	—	346	280	213	304	280	213	304
Vesting period	—	—	3 years	3 years	3 years	3 years	3 years	3 years	3 years
Allocated to recipients			Feb 2019	Feb 2022	Feb 2021	Feb 2020	Feb 2022	Feb 2021	Feb 2020
Total market value at launch (DKK million)	—	—	508	115	76	29	312	162	68
Amortisation period of the programme	—	—	2016 to 2019	2018 to 2021	2017 to 2020	Expensed in 2016	2018 to 2021	2017 to 2020	2016 to 2019

Outstanding restricted stock units	**2018**	2017
Outstanding at the beginning of the year	4,833,882	4,591,526
Released restricted stock units to employees	(35,180)	(9,200)
Released shares allocated to Management in 2014	(764,474)	(749,658)
Released shares allocated to individual employees	(25,883)	—
Cancelled allocated shares	(209,308)	(157,724)
Adjustments	—	5,423
Allocated restricted stock units to employees (2016 programme)	100,000	—
Shares allocated to Management in the year	1,525,545	1,118,021
Shares allocated to individual employees in the year	159,437	35,494
Outstanding at the end of the year	**5,584,019**	4,833,882

Outstanding restricted stock units	Issued[1]	Released	Cancelled	**Outstanding**	Value at launch date DKK million	Vesting date
Restricted stock units to employees						
2016 Restricted stock units	1,565,411	(44,380)	—	1,521,031	508	Q1 2019
Outstanding restricted stock units to employees	1,565,411	(44,380)	—	1,521,031		
Shares allocated to Management Board						
2014 Shares allocated to joint pool	298,467	(293,542)	(4,925)[3]	—	66	Q1 2018
2015 Shares allocated to joint pool	378,943	—	(522)	378,421	108	Q1 2019
2016 Shares allocated to joint pool	96,705	—	(1,623)[3]	95,082	29	Q1 2020
2017 Shares allocated	356,195	—	(12,074)	344,121	76	Q1 2021
2018 Shares allocated[2]	411,090	—	—	411,090	115	Q1 2022
Outstanding shares for Management Board	1,541,400	(293,542)	(19,144)	1,228,714		
Shares allocated to pools for management group below Management Board						
2014 Shares allocated	683,728	(514,362)	(169,366)	—	155	Q1 2018
2015 Shares allocated	879,988	—	(212,415)	667,573	251	Q1 2019
2016 Shares allocated	224,055	—	(37,092)	186,963	68	Q1 2020
2017 Shares allocated	761,826	—	(65,591)	696,235	162	Q1 2021
2018 Shares allocated[2]	1,114,455	—	—	1,114,455	312	Q1 2022
Outstanding shares for Management group below Management Board	3,664,052	(514,362)	(484,464)	2,665,226		
Shares allocated to individual employees	194,931	(25,883)	—	169,048	53	2019-2021
Outstanding at the end of 2018	6,965,794	(878,167)	(503,608)	**5,584,019**		

1. All restricted stock units and shares allocated to Management are hedged by treasury shares.
2. 2018 programme granted subsequent to approval of the 2018 Annual Report on 1 February 2019. From 2017, the shares allocated to the Management Board will no longer remain in a share pool if a member of the Management Board terminates the employment with Novo Nordisk. From 2017 onwards, the programme will be expensed equally over the grant year and the subsequent 3 years of vesting.
3. Cancellation is related to individuals who were compensated in cash instead of shares upon resignation.

5.2 Commitments

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

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[1]	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[2]	550	833	818	2,390	4,591
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	4,382	24,563
Total contractual obligations	9,851	6,572	3,821	5,575	**25,819**

2017

DKK million	Within 1 year	1-3 years	3-5 years	More than 5 years	Total
Retirement benefit obligations	27	54	51	1,204	1,336
Total obligations recognised in the balance sheet	27	54	51	1,204	1,336
Operating leases[1]	1,098	1,486	1,167	2,110	5,861
Research and development obligations	1,912	767	95	—	2,774
Research and development - potential milestone payments[2]	193	725	166	1,628	2,712
Purchase obligations relating to investments in property, plant and equipment	1,663	—	—	—	1,663
Other purchase obligations	5,192	2,552	1,474	14	9,232
Total obligations not recognised in the balance sheet	10,058	5,530	2,902	3,752	22,242
Total contractual obligations	10,085	5,584	2,953	4,956	23,578

1. No material finance lease obligations existed in 2018 or 2017.
2. Potential milestone payments are associated with uncertainty as they are linked to successful achievements in research activities.

The operating lease commitments are related to non-cancellable operating leases primarily for premises and company cars. Approximately 69% of the commitments are related to leases outside Denmark. The lease costs for 2018 and 2017 were DKK 1,299 million and DKK 1,392 million respectively.

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. Excise fees and subsequent milestone payments under in-licensing option agreements are excluded, as Novo Nordisk is not contractually obligated to make such payments. Commercial milestones and royalty 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. Novo Nordisk has engaged in research and development projects with a number of external enterprises.

DKK million	**2018**	2017
Other guarantees		
Other guarantees primarily related to guarantees issued by Novo Nordisk in relation to rented property	973	752
Security for debt		
Land, buildings and equipment etc at carrying amount	2	3

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 the lower of DKK 90 million or 15% of the taxable income of Novo Nordisk A/S in the financial year in question.

For 2018, total donation amounts to DKK 85 million (DKK 85 million in 2017 and DKK 85 million in 2016).

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 75.8% 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.

Being an associated company of Novo Nordisk A/S, NNIT Group is considered a related party. Due to shared controlling shareholder, the Novozymes Group and Xellia Pharmaceuticals are also considered related parties as well as the Board of Directors or Executive Management of Novo Nordisk A/S.

In 2018, Novo Nordisk A/S acquired 14,025,000 B shares, worth DKK 4.2 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 2018.

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

DKK million	**2018**	2017	2016
Novo Nordisk Foundation			
Donations to Steno Diabetes Center A/S via Novo Nordisk	—	—	(69)
Services provided by Novo Nordisk	(6)	(4)	(3)
Services provided by Novo Nordisk Foundation	—	—	31
Novo Holdings A/S			
Services provided by Novo Nordisk	(6)	(3)	(2)
Purchase of Novo Nordisk B shares	4,207	—	—
Sale of NNIT B shares	(368)	—	—
Dividend payment to Novo Holdings A/S	5,496	5,330	6,592
NNIT Group			
Services provided by Novo Nordisk	(5)	(25)	(30)
Services provided by NNIT	1,052	1,231	1,239
Dividend payment from NNIT	(19)	(26)	(26)
Novozymes Group			
Services provided by Novo Nordisk	(115)	(145)	(163)
Services provided by Novozymes	121	163	150
Xellia Pharmaceuticals			
Services provided by Novo Nordisk	(1)	(13)	(108)

Novo Nordisk has transferred the activities of Steno Diabetes Center A/S to the Capital Region of Denmark as of 1 January 2017.

In Novo Nordisk A/S, there have been no transactions with the Board of Directors or Executive Management besides remuneration. There have not been any 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 or Xellia Pharmaceuticals ApS.

For information on remuneration of the Management of Novo Nordisk, please refer to `Remuneration´ on pp 53–57 (unaudited) and note 2.4, 'Employee costs'. There are no loans to the Board of Directors or Executive Management in 2018, nor were there any in 2017 or 2016.

For outstanding trade payables to associated company please refer to note 3.7. There are no other material unsettled balances with related parties at the end of the year.

5.4 Fee to statutory auditors

DKK million	**2018**	2017	2016
Statutory audit	25	24	24
Audit-related services	3	4	4
Tax advisory services	11	10	9
Other services	3	5	4
Total fee to statutory auditors	**42**	43	41

Fees for services other than statutory audit of the financial statements amounts to DKK 17 million (DKK 19 million in 2017 and DKK 17 million in 2016). PricewaterhouseCoopers Statsautoriseret Revisionspartnerselskab (PricewaterhouseCoopers Denmark) provided other services in the amount of DKK 9 million (DKK 8 million in 2017 and DKK 7 million in 2016). 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, due diligence, 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	●
International Operations		
Novo Nordisk Pharma Operations A/S, Denmark	100	● ●
Novo Nordisk Region International Operations 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-Hercegovina	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 Region Europe Pharmaceuticals 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 (BAOS) 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 company		
NNE A/S, Denmark	100	●
NNIT A/S, Denmark	18	●

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

Financial definitions

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.

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

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 local currencies
- Operating profit after tax to net operating assets
- Financial resources
- Free cash flow
- Cash to earnings

IFRS refers to an IFRS financial measure.

Sales and operating profit growth in local currencies
'Growth in local currencies' 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 that growth in local currencies are artificially inflated.

Growth in local currencies 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 local currencies

DKK million	2018	2017	2016
Net sales **IFRS**	111,831	111,696	111,780
Effect of exchange rate	5,043	2,609	2,110
Sales in local currencies	**116,874**	114,305	113,890
Net sales previous year	111,696	111,780	107,927
% increase/(decrease) in local currencies	5%	2%	6%
% increase/(decrease) in reported currencies	0%	0%	4%

Operating profit in local currencies

DKK million	2018	2017	2016
Operating profit **IFRS**	47,248	48,967	48,432
Effect of exchange rate	3,098	1,770	1,099
Operating profit in local currencies	**50,346**	50,737	49,531
Operating profit previous year	48,967	48,432	49,444
% increase/(decrease) in local currencies	3%	5%	0%
% increase/(decrease) in reported currencies	(4%)	1%	(2%)

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.

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	2018	2017	2016
Operating profit after tax	38,318	38,341	38,407
/ Average net operating assets	32,832	26,776	25,578
Operating profit after tax to net operating assets in %	**117%**	143%	150%

OPAT/NOA numerator

Reconciliation of operating profit to operating profit after tax:

DKK million	2018	2017	2016
Operating profit IFRS	47,248	48,967	48,432
Tax on operating profit (using effective tax rate)	(8,930)	(10,626)	(10,025)
Operating profit after tax	**38,318**	38,341	38,407

OPAT/NOA denominator

Reconciliation of average net operating assets: IFRS

DKK million	2018	2017	2016
Intangible assets	5,145	3,325	2,714
Property, plant and equipment	41,891	35,247	30,179
Deferred income tax assets	2,893	1,941	2,683
Inventories	16,336	15,373	14,341
Trade receivables	22,786	20,165	20,234
Tax receivables	1,013	958	1,552
Other receivables and prepayments	3,090	2,428	2,411
Deferred tax liabilities	(118)	(846)	(13)
Retirement benefit obligations	(1,256)	(1,336)	(1,451)
Provisions (non-current)	(3,392)	(3,302)	(3,370)
Trade payables	(6,756)	(5,610)	(6,011)
Tax payables	(4,610)	(4,242)	(3,976)
Other liabilities	(14,098)	(14,446)	(14,181)
Provisions (current)	(26,161)	(20,755)	(20,461)
Net operating assets	**36,763**	28,900	24,651
Average net operating assets	**32,832**	26,776	25,578

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, bonds with original term to maturity exceeding three months and undrawn committed credit facilities less current debt (including bank overdrafts). Management believes that financial resources at the end of the year is 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	2018	2017	2016
Cash and cash equivalents IFRS	15,629	17,158	18,461
Marketable securities IFRS	—	—	2,009
Undrawn committed credit facilities	11,574	8,190	8,178
Current debt (bank overdrafts)	(506)	—	—
Financial resources	**26,697**	25,348	28,648

Free cash flow

Novo Nordisk defines free cash flow as 'net cash generated from operating activities' less 'net cash used in investing activities' excluding net change in marketable securities.

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 e.g. dividends, share repurchases and repayment of debt (excluding lease liability repayments) or for retaining in the business to fund future growth.

With IFRS 16 'Leases' becoming effective 1 January 2019, lease payments will transfer from 'net cash flow from operating activities' to 'cash flow from financing activities' (excluding interest expense). Effective from 1 January 2019, the definition of free cash flow will be amended to also deduct the principal repayment on lease liabilities. Accordingly the implementation of IFRS 16 will have a neutral impact on free cash flow. The free cash flow outlook guidance for 2019 (p 13) is calculated on the amended definition of free cash flow.

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	2018	2017	2016
Net cash generated from operating activities IFRS	44,616	41,168	48,314
Net cash used in investing activities IFRS	(12,080)	(6,571)	(6,790)
Net purchase of marketable securities IFRS	—	(2,009)	(1,533)
Free cash flow	**32,536**	32,588	39,991

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	2018	2017	2016
Free cash flow	32,536	32,588	39,991
/ Net profit IFRS	38,628	38,130	37,925
Cash to earnings	**84.2%**	85.5%	105.4%

Statement of social performance

for the year ended 31 December

	Note	2018	2017	2016
Patients				
Patients reached with Novo Nordisk diabetes products (estimate in millions)	7.1	29.2	27.7	28.0
Patients reached with Novo Nordisk diabetes products via the Access to Insulin Commitment (estimate in millions)	7.1	0.3	0.3	—
Donations (DKK million)	7.2	103	103	106
Animals purchased for research	7.3	65,593	67,623	77,920
Employees				
Employees (total)	8.1	43,202	42,682	42,446
Employee turnover	8.1	11.7%	11.0%	9.7%
Employee engagement		91%	90%	—
Gender in management (ratio men:women)	8.1	60:40	60:40	59:41
Frequency of occupational accidents (number per million working hours)	8.2	2.4	2.7	3.0
Responsible business				
Relevant employees trained in business ethics		99%	99%	99%
Business ethics reviews	9.1	33	34	52
Fulfilment of action points from facilitations of the Novo Nordisk Way	9.2	99%	97%	95%
Supplier audits	9.3	294	246	223
Product recalls	9.4	3	6	6
Failed inspections	9.5	0	0	0
Company reputation (scale 0–100)	9.6	83.3	79.3	77.8
Total tax contribution (DKK million)	9.7	25,825	—	—

Notes to the consolidated social statement

In the consolidated social statement, Novo Nordisk reports on three dimensions of performance: patients, employees and responsible business. Progress is reported on two long-term targets, namely employee engagement and company reputation (see pp 15, 16, 19 and note 9.6).

The consolidated social statement contains material performance information of strategic importance, such as patients reached with diabetes care products, employee turnover, gender diversity, training of employees in business ethics, supplier audits and product quality.

Section 6
Basis of preparation

General reporting standards and principles
Novo Nordisk's annual reporting complies with the Danish Financial Statements Act. Section 99a and b specifies the requirements of the EU Directive on disclosure of non-financial and diversity information to report on management of risks related to 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 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/sustainable-business/performance-on-tbl.html
- The UK Modern Slavery Act, adopted in 2015, requires commercial organizations operating in the UK to publish an annual slavery and human trafficking statement. Novo Nordisk's annual statement is available at novonordisk.com/sustainable-business/performance-on-tbl.html
- Recommendations of the Financial Standards 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 informa-tion to investors, lenders, insurers, and other stakeholders. Novo Nordisk's actions taken in line with the TCFD recommendations are reported at novonordisk.com/sustainable-business/performance-on-tbl/environmental-responsibility.
- The AA1000APS(2008) 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 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/annualreport and submitted to the UN Global Compact database unglobalcompact.org.

Novo Nordisk applies AA1000APS(2008) 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 AA1000APS(2008) 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 a social responsibility perspective, 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 on p 5.

Materiality
Key issues are identified through ongoing stakeholder engagement and trendspotting, 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 the retail 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.

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/sustainable-business/performance-on-tbl/more-about-how-we-work-and-report.

The conclusion from the external assurance provider is available in the Independent limited assurance report on p 109.

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:

- 'New patent families (first filings)' is no longer reported, as it no longer adequately reflects progress in research activities, cf new research and development strategy (see p 22). Information on patent expiries has been moved to p 20.
- Total tax contribution has been added to provide an overview of the tax contribution to society generated by Novo Nordisk. The taxes can be either borne or collected by Novo Nordisk. Data collected for 2018 only.

Other accounting policies

Employee engagement
Employee engagement is measured on a scale of 1–5 and based on questions in the annual employee survey, OurVoice, related to employee engagement. The score is calculated as the proportion of employees who responded favourably (4 or 5) to relevant questions. For 2018, the response rate was 91% compared with 94% in 2017.

Relevant employees trained in business ethics
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.

Section 7
Patients

7.1 Patients reached with Novo Nordisks diabetes products (estimate)

Accounting policies
The number of full-year patients reached with Novo Nordisk diabetes 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 diabetes 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 other low-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.

The WHO-defined daily dosage has not changed since 1982 and may not reflect the recommended or prescribed daily dose accurately. Actual doses are based on individual characteristics (eg 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 27.7 million in 2017 to 29.2 million in 2018. This 5% increase was primarily driven by sales of human insulin (0.6 million people) and long-acting, premix and fast-acting modern and new-generation insulin (0.6 million people).

In 2018, as in 2017, the estimated number of patients reached via the Access to Insulin Commitment was 0.3 million, and Novo Nordisk sold insulin according to this commitment in 20 countries. Beyond this scheme, Novo Nordisk also sold human insulin below the ceiling price in other countries, as well, reaching an estimated 5 million patients in 2018, as in 2017.

7.2 Donations

Accounting policies
Donations by Novo Nordisk to the World Diabetes Foundation (WDF) and the Novo Nordisk Haemophilia Foundation are recognised as an expense when the donation is paid out or when an unconditional commitment to donate has been made.

Donations

DKK million	2018	2017	2016
World Diabetes Foundation (WDF)	85	85	85
Novo Nordisk Haemophilia Foundation (NNHF)	18	18	21
Total donations	103	103	106

WDF, an independent trust, supports sustainable partnerships and acts as a catalyst to help others do more. In 2018, WDF provided funding to 30 partnership projects in 27 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 268 programmes in 73 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	2018	2017	2016
Mice, rats and other rodents	63,547	65,869	76,049
Pigs	1,023	835	891
Rabbits	641	493	347
Dogs	100	63	227
Non-human primates	278	241	406
Other vertebrates	4	122	—
Total animals purchased	65,593	67,623	77,920

The number of animals purchased for research in 2018 decreased by 3% compared with 2017 and reflect the changes in stages of the different research projects. In all, 97% of the animals purchased were rodents. The variation in the purchase of large animals from year to year reflects the development phases the research projects have reached.

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.

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.

Diversity at Novo Nordisk is reported as the percentage split by gender in all managerial positions and for newly appointed managers. Managerial positions are defined as all managers at Novo Nordisk (global job level incl EVP, SVP, CVP, VP, General Manager, Director, Manager and Team Leader). New managers are defined as all employees who have moved to a managerial position within the last 12 months – both promoted and externally hired.

Employees

Numbers	2018	2017	2016
North America	6,093	6,391	6,394
Region Europe	22,114	21,920	22,529
- of which in Denmark	17,461	17,510	18,221
Region AAMEO	7,127	6,767	6,200
Region China	4,636	4,482	4,356
Region Japan & Korea	1,268	1,252	1,190
Region Latin America	1,964	1,870	1,777
Total employees	**43,202**	42,682	42,446
Full-time employees	42,672	42,076	41,971
Employee turnover	**11.7%**	11.0%	9.7%
Change in employees	1%	1%	3%
Gender split among all managers	60:40	60:40	59:41
Share of women among newly appointed managers	38%	43%	43%

The development in employees was mainly driven by Region China, Region Europe, the global service centre in Bangalore, India and expansions of production facilities in Algeria, China and the US. Employee turnover increased from 11.0% in 2017 to 11.7% in 2018.

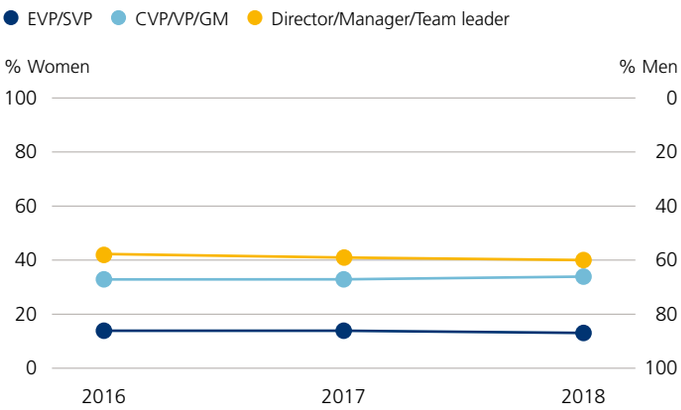
The decreasing share of women among newly appointed managers was driven by fewer women appointed to entry level positions (manager and team leader). At the same time a higher share of women were appointed to senior management positions (SVP, CVP, VP and GM), especially among external hires.

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 2018, same as in 2017.

The graph below shows the gender split among managers for the last three years.

Gender in management



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 2.4 per million working hours in 2018, compared with 2.7 in 2017 due to a 8% decrease in the number of accidents. The decrease is mainly attributed to improved performance in the commercial units. In 2018, as in 2017, there were no work-related fatalities. 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 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. Group Internal Audit will during a business ethics review, examine procedures and processes in place to ensure ethical behaviour. Any identified gaps 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.

Development
A total of 33 business ethics reviews were completed in 2018 with 113 findings, compared to 34 reviews with 130 findings in 2017. Based on the completed business ethics reviews, it is Group Internal Audit's assessment that the business ethics compliance level, in 2018 as in 2017, continued to be sound. Management action plans and closure of findings has progressed as planned, and there were no overdue management actions or findings at the end of the year.

9.2 Fulfilment of action points from facilitations of the Novo Nordisk Way

Accounting policies
Facilitation is the internal audit process for assessing compliance with the Novo Nordisk Way. The assessment is based on review of documentation and feedback from stakeholders followed by an on-site visit where randomly selected employees and management are interviewed. Any identified gaps related to the Novo Nordisk Way are presented to management as findings. The facilitators and management agree on an action plan to close the findings. The percentage of fulfilment of action points is measured as an average of timely closure of action points issued in the current year and the two previous years. The reason for using a three-year average as the basis for the calculation is that action lead times typically vary from a few months to more than a year.

Facilitations and findings

	2018	2017	2016
Fulfilment of action points	99%	97%	95%
Facilitations	63	65	84
Findings	259	264	283

A total of 63 units were facilitated covering approximately 17,000 employees, of whom almost 2,200 were interviewed. In addition, feedback on those units was collected from almost 700 stakeholders. Overall, the facilitations in 2018, as in 2017, showed a 'high level' of compliance with the Novo Nordisk Way. Corrective actions and corresponding deadlines were agreed with local management for all actions. The main areas of improvement that were identified, covering approximately 60% of all findings, concerned Essential 5 'We build and maintain good relations with our key stakeholders', Essential 7 'We focus on personal performance and development' and Essential 9 'We strive for agility and simplicity in everything we do'. The 10 Essentials are part of the Novo Nordisk Way. See pp 6–7 for additional information.

9.3 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

Numbers	2018	2017	2016
Responsible sourcing audits	19	28	27
Quality audits	275	218	196
Total supplier audits	294	246	223

The number of audits concluded in 2018 increased by 20% compared with 2017. The increase in quality audits was related to projects, notably the expansion of the production facilities in Clayton, North Carolina. Responsible sourcing audits decreased due to a reduced need for audits of new suppliers to production, a majority of which were categorised as low risk suppliers. There were no critical findings in 2018.

9.4 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 three product recalls from the market in 2018, compared with six in 2017. None of these recalls were critical. Local health authorities were informed in all instances to ensure that distributors, pharmacies, doctors and patients received appropriate information.

9.5 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), EU notified bodies (Lloyd's Register Quality Assurance) 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 2018, as in 2017, there were no failed inspections among those resolved at year-end. 75 inspections were conducted in 2018 compared with 83 in 2017. At year-end, 55 inspections were passed and 20 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 2019.

9.6 Company reputation

Accounting policies
Company reputation is measured annually using the RepTrak® methodology developed by Reputation Institute. The total score is measured as the mean company reputation score among people with diabetes, general practitioners and diabetes specialists across key markets. Reputation 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 2018.

The data are collected through annual surveys carried out by external consultancy firms.

Company reputation

By stakeholder group	2018	2017	2016
People with diabetes	73.9	77.2	73.7
General practitioners	87.5	79.1	78.9
Diabetes specialists	88.6	81.7	80.9
Total score	**83.3**	79.3	77.8

9.7 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 Novo Nordisk collect 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, custom 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 2018 amounted to DKK 25,825 million split into 53% on taxes borne and 47% on taxes collected.

Total tax contribution

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	2018	2017	2016
Resources				
Energy consumption (1,000 GJ)	11.1	2,890	2,922	2,935
Share of renewable power for production	11.1	77%	79%	78%
Water consumption (1,000 m^3)	11.2	3,101	3,276	3,293
Emissions and waste				
CO_2 emissions from energy consumption at production sites and product distribution (1,000 tons)	12.1	127	129	130
CO_2 emissions from operations and transportation (1,000 tons)	12.1	269	—	—
Waste (1,000 tons)	12.2	142	157	153
Responsible business				
Breaches of regulatory limit values	13.1	27	23	42

Notes to the consolidated environmental statement

In the consolidated environmental statement, Novo Nordisk reports on performance in terms of resources, emissions and waste. Progress is reported against two long-term targets; to have all power at production sites sourced from renewable energy by 2020 and to have zero CO_2 emissions from operations and transportation by 2030. See p 17 and notes 11.1 and 12.1.

The statement of environmental performance contains material performance information of strategic importance, such as energy and water consumption, CO_2 emissions, waste and breaches of regulatory limit values.

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 1 'Basis of preparation' of the consolidated social statement on p 98.

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 consistently applied in the preparation of the consolidated environmental statement for all the years presented.

Changes to accounting policies and disclosures
The following disclosure change have been made:

- 'CO_2 emissions from energy consumption' and 'CO_2 emissions from product distribution' are reported as one disclosure 'CO_2 emissions from production sites and product distribution'. Historical data has been updated accordingly.
- 'CO_2 emissions from operations and transportation' has been added as a new long-term target, to drive the new environmental strategy in alignment with management priorities. Historical data does not exist. See note 12.1 for information about the scope.

Section 11
Resources

11.1 Energy consumption and share of renewable power

Accounting policies
Energy consumption 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. Energy consumption covers all energy types at production sites and also covers laboratories and office buildings at the 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.

Development
In 2018, energy consumption at the production sites remained stable at 2.9 million GJ compared with 2017. Energy consumption for the production of biopharmaceuticals increased by 3% due to new API production facilities, while energy consumption for production of diabetes and obesity treatment remained stable in line with planned production. To support the new long-term environmental target, Novo Nordisk will expand the scope of reporting energy consumption to also cover global offices and laboratories.

In 2018, 77% of the power used at the production sites was based on renewable energy compared with 79% in 2017. The decrease was due to decreased production in Kalundborg, Denmark, which uses wind power for electricity. Novo Nordisk remains well on track to reach its target of 100% power from renewable sources at production sites by 2020.

11.2 Water consumption

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 2018, water consumption decreased overall by 5% to 3.1 million m^3. Water consumption for production of diabetes and obesity treatment decreased by 7% in line with planned production while water consumption for the production of biopharmaceuticals increased by 5% due to new API facilities.

Three facilities, in Algeria, Brazil and China, are in regions subject to high water stress or large seasonal variations and consumed 14% of the total water used at the production sites. There have been no water shortage incidents in 2018 and overall, water consumption at these facilities decreased by 5% in 2018.

Section 12
Emissions and waste

12.1 CO_2 emissions

Accounting policies
CO_2 emissions from energy consumption at production sites
CO_2 emissions from energy consumption cover consumption of power, fuel, heat and steam from all buildings at production sites. 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 operations and transportation
CO_2 emissions from operations and transportation comprises the components set out below.

CO_2 emissions from operations cover consumption of power, fuel, heat and steam at production sites, laboratories, office buildings in Denmark and consumption of power in office buildings outside of 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 business flights are estimated based on mileage and emission factors for short, medium and long-haul flights obtained from travel agencies.

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.

For CO_2 emissions from product distribution - see 'CO_2 emissions from product distribution' above.

CO_2 emissions from production sites and product distribution

1,000 tons	**2018**	2017	2016
Production sites	88	90	92
Product distribution	39	39	38
Total CO_2 emissions	**127**	129	130

In 2018, CO_2 emissions from production sites and product distribution decreased by 2%. CO_2 emissions from production decreased slightly primarily due to lower energy consumption in Kalundborg, Denmark.

Novo Nordisk has a new long-term target to have zero CO_2 emissions from operations and transportation by 2030. This includes all CO_2 emissions from production, global offices and laboratories, product distribution, business flights and company cars. In 2018, the total CO_2 emissions from operations and transportation were 269,000 tons - see p 17 for additional information.

12.2 Waste

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	2018	2017	2016
Recycling	105	122	116
- Organic residues[1]	93	116	109
- Other (paper, cardboard, metals etc.)	12	6	7
Energy recovery[2]	28	28	30
- Ethanol waste[3]	22	21	24
- Other (various combustible waste)	6	7	6
No energy recovery[4]	8	6	6
- Water waste	4	5	5
- Other	4	1	1
Landfill	1	1	1
Total waste	142	157	153

1. Organic residues for recycling is 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 and biopharmaceutical products. The ethanol is recovered in own 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.

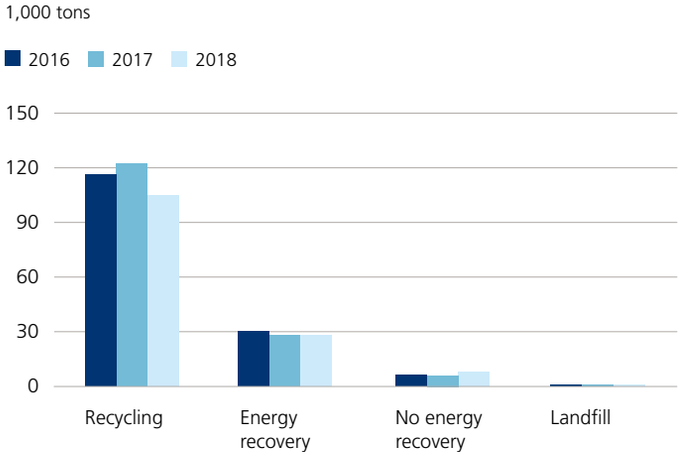
In 2018, the total waste volume from production sites decreased by 10% compared with 2017. This is mainly due to a decrease in the organic residues from the fermentation of insulin.

Two one-off occurrences caused increases within the categories 'Other', 'Recycling' and 'No energy recovery.' The increase within 'Recycling' (other) came from the clean-up of old renovation waste at the production facility in Brazil, where the waste could be used in cement production. The increase in 'No energy recovery' was a result of organic residues used directly as fertiliser without prior energy recovery in the biogas plant.

At Novo Nordisk, it is a priority to recycle as much waste as possible, and secondarily to ensure energy recovery when recycling is not possible. 94% of the total waste is recycled, used for biogas production or incinerated at plants where the energy is used for heat and power production.

21% of the waste is categorised as hazardous waste, an increase from 18% in 2017. This is mainly due to increasing volumes of ethanol waste due to less ethanol regeneration.

Waste disposal



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
Incidents with breaches of regulatory limit values increased from 23 in 2017 to 27 in 2018; however four of these breaches were caused by the same incident. The breaches were mainly related to wastewater, and all had minimal 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 2018. 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.

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 2018, the results of the Group's and parent company's operations, and consolidated cash flows for the financial year 2018. 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(2008), 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.

Bagsværd, 1 February 2019

Registered Executive Management

Lars Fruergaard Jørgensen
President and CEO

Karsten Munk Knudsen
CFO

Jesper Brandgaard

Lars Green

Camilla Sylvest

Mads Krogsgaard Thomsen

Henrik Wulff

Board of Directors

Helge Lund
Chair

Jeppe Christiansen
Vice chair

Brian Daniels

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 2018 and of the results of the Group's operations and cash flows for the financial year 1 January to 31 December 2018 in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board and in accordance with International Financial Reporting Standards as endorsed 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 2018 and of the results of the Parent Company's operations for the financial year 1 January to 31 December 2018 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 2018, pp 58–94, 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 2018, pp 114–118, 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 37 years including the financial year 2018.

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 2018. 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 Sales to various customers in the US, 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 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 3.6.	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 estimates in previous years. We formed an independent assessment of the most significant elements of the accrual at 31 December 2018 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 3.6.	We discussed the status of significant known actual and potential litigation 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 have 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, pp 1–57 and pp 95–96.

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 issued by the International Accounting Standards Board and in accordance with International Financial Reporting Standards as endorsed by the EU and further requirements in the Danish Financial Statements Act and for the preparation of the 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 (the Board of Directors) 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, 1 February 2019

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 2018

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 2018.

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 statement of Novo Nordisk's Annual Report for the year ended 31 December 2018 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 AA1000APS (2008) (AA1000ApS) principles of Inclusivity, Materiality and Responsiveness 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 Statement of social and environmental performance and associated Notes on pp 97-105 in the Annual Report of Novo Nordisk (the "Selected Information").
B) Novo Nordisk's description of alignment with the AA1000APS principles of Inclusivity, Materiality and Responsiveness for the year ended 31 December 2018, which is set out on p 98 (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 AA1000AS (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 (2008) (AA1000AS). 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 (pp 98-105), 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 controls 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 disclosure and presentation of the Selected Information.

B) In respect of Novo Nordisk's description of alignment with AA1000APS principles of Inclusivity, Materiality and Responsiveness we performed the following activities:
- interviewed members of Novo Nordisk's Executive Management, Corporate Affairs, Global Development, Device R&D, Strategic Sourcing and North America Operations including Canada and Region AAMEO 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 unlocking value and innovation through partnerships;
- 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 Triple Bottom Line (TBL) governance and stakeholder relationships. Our work focused on the alignment of TBL priorities and business objectives and how the revised performance management system support TBL priorities in decision-making to pursue the objective of 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 2018.

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 performedand the evidence we have obtained; and
- reporting our conclusion to the Stakeholders of Novo Nordisk A/S.

Observations and recommendations
According to AA1000AS, 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 and Responsiveness. We have communicated a number of minor recommendations for improvement to the management of Novo Nordisk.

Hellerup, 1 February 2019

PricewaterhouseCoopers
Statsautoriseret Revisionspartnerselskab (CVR no. 3377 1231)

Mogens Nørgaard Mogensen
State Authorised Public Accountant
mne21404

Mads Melgaard
State Authorised Public Accountant
mne34354

Legal disclaimers and references

Legal disclaimers

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 printed extract of this statutory Annual Report is available in English upon request. Furthermore, a shortened printed version, consisting of the Management review and excerpts from the consolidated statements, is available in Danish upon request. 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 21 March 2019 and will subsequently be submitted to and be available at the Danish Business Authority.

Please also refer to the additional reporting listed on p 112.

The Management Review has been prepared in accordance with the Danish Financial Statements Act (FSA), sections 99a and 99b. Section 99a requires Novo Nordisk to account for the company's activities relating to social responsibility, reporting on business model, significant risks, business strategies, and activities in the areas of human rights, labour standards, environment and climate and anti-corruption. Section 99b requires Novo Nordisk to account for the gender diversity at Board level by reporting on targets and policies ensuring increased gender diversity over time.

Novo Nordisk remains committed to reporting its performance through its integrated reporting in adherence with the <IR> Framework for Integrated Reporting. In line with the Novo Nordisk Triple Bottom Line principle, the Consolidated financial, social and environmental statements are presented along with the related notes.

Within each of the financial, social and environmental statements, the notes are grouped into sections based on how Novo Nordisk views its business. Each of the sections has an introduction explaining the link between long-term targets and business priorities, and how this is reflected in Novo Nordisk's financial, social and environmental statements. To provide transparency in the disclosed amounts, each note includes the relevant accounting policy, key accounting estimates and numerical disclosures.

References AR18

1,19. International Diabetes Federation. IDF Diabetes Atlas, 8th edition, 2017. **2.** World Health Organization. Obesity and Overweight, Fact sheet, 2018. **3.** Laakso M. Cardiovascular Diseases in Type 2 Diabetes From Population to Man to Mechanism. Diabetes care, vol. 33, No 2, pp 442–449, 2010. DOI: 10.2337/dc09-0749. **4,6.** Stewart K.D., et al. Preference for pharmaceutical formulation and treatment process attributes. Patient Preference and Adherence, pp. 1385–1399, 2016. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC4970633/. **5.** Abramson A. et al. An ingestible self-orienting applicator for oral delivery of macromolecules. Science Journal, pp. 1–55, 2019. **7.** reference to leading medications: CI **8**. World Health Organization. Global Report on Diabetes. 2016. **9.** QVIA PharMetrix claims data. **10,12.** World Health Organization. Obesity and Overweight, Fact sheet, 2018. Available at: www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight. **11.** IQVIA (formerly IMS) MIDAS 2017 **13.** Cawley J. et al. Savings in Medical Expenditures Associated with Reductions in Body Mass Index Among US Adults with Obesity, by Diabetes Status. Pharmacoeconomics, pp.708–722, 2015. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC4486410/pdf/40273_2014_Article_230.pdf. **14.** World Health Organization. Noncommunicable diseases, Fact sheet, 2018. Available at: www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. **15.** World Health Organization. Non communicable diseases in emergencies. Available at: http://apps.who.int/iris/bitstream/handle/10665/204627/WHO_NMH_NVI_16.2_eng.pdf?sequence=1. **16.** Halford G. Prevalence of Diabetes in ICRC Supported Physical Rehabilitation Centers for Disease Control Prevention, 2016. **17.** Novo Nordisk, Incentive, ed. Holte. Cities Changing Diabetes. Diabetes Projection Model, Global. Data on file, 2017. **18.** National Center for Chronic Disease Prevention and Health Promotion. National Diabetes Statistics Report, 2017 Estimates of Diabetes and its Burden In the United States, pp 1–20, 2017.

Market data on pp 10–11 and p 32 are from IQvia, November, 2018

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Product overview

Diabetes

Long-acting insulin
- Tresiba®, insulin degludec
- Xultophy®, insulin degludec/liraglutide
- Levemir®, insulin detemir

Premix insulin
- Ryzodeg®, insulin degludec/insulin aspart
- NovoMix® 30, biphasic insulin aspart
- NovoMix® 50, biphasic insulin aspart
- NovoMix® 70, biphasic insulin aspart

Fast-acting insulin
- Fiasp®, fast-acting insulin aspart
- NovoRapid®, insulin aspart
- NovoRapid® PumpCart®, pre-filled insulin pump cartridge

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

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® 6
- NovoPen® 5
- NovoPen® 4
- NovoPen Echo® Plus, with memory function

Needles
- NovoFine®, 30 Gauge, 31 Gauge,
- NovoFine® Plus, 32 Gauge
- NovoTwist®, 30 Gauge, 32 Gauge
- NovoFine® AutoCover

Oral antidiabetic agents
- NovoNorm®, repaglinide

Glucagon
- GlucaGen®, glucagon for diagnostic use
- GlucaGen® Hypokit, glucagon emergency kit for severe hypoglycaemia

Obesity

- Saxenda®, liraglutide 3 mg

Biopharmaceuticals

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

Human growth hormone
- Norditropin®, somatropin (rDNA origin)
- Norditropin® FlexPro®, pre-filled multi-dose 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®
- PenMate®, automatic needle inserter (for NordiPen® and NordiFlex®)

Hormone replacement therapy
- Vagifem®, estradiol hemihydrate
- Activelle®, estradiol/norethisterone acetate
- Kliogest®, estradiol/norethisterone acetate
- Novofem®, estradiol/norethisterone acetate
- Trisequens®, estradiol/norethisterone acetate
- Estrofem®, estradiol

The product overview on this page makes reference to our 2018 product offering. The names used are European product trade names with accompanying generic names. Trade and generic names may differ in other markets.

A selection of Novo Nordisk´s injection devices

About our reporting and more information

Additional reporting

Novo Nordisk provides additional disclosure to satisfy legal requirements and stakeholder interests. Supplementary reports can be downloaded from novonordisk.com/annual report, while additional information can be found here.

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.

Annual report
The full statutory Annual Report is available online novonordisk.com/annualreport

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.

This printed extract excludes the financial statements of the parent company and is available in English.

A shortened, printed version, consisting of the Management review and excerpts from the consolidated statements, is available in Danish.

Form 20-f
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.

Communication on progress
The Communication on Progress to the UN Global Compact is a voluntary reporting format 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. It also adheres to the UN Guiding Principles Reporting Framework on respect of human rights.

Financial calendar 2019

1 February 2019
Financial statement for the full year of 2018

21 March 2019
Annual general meeting 2019

22 March 2019
Ex-dividend

25 March 2019
Record date

26 March 2019
Payment, B shares

2 April 2019
Payment, ADRs

3 May 2019
Financial statements for the first three months of 2019

9 August 2019
Financial statements for the first six months of 2019

16 August 2019
Ex-dividend

19 August 2019
Record date

20 August 2019
Payment, B shares

27 August 2019
Payment, ADRs

1 November 2019
Financial statements for the first nine months of 2019

Financial calendar 2020

5 February 2020
Financial statements for the full year of 2019

News and updates

For more news from novo nordisk, visit
novonordisk.com/investors
novonordisk.com/media
novonordisk.com/sustainable-business

Born and raised in Dublin, Ireland, Vicki Mooney, now lives in Spain with her daughter Mia and sons Josh and Andy.

"I share my own experiences and speak openly on taboo subjects such as obesity and mental health. My passion is to empower people and change negative ways of thinking which affect so many people, from the older generation to the youth of today. Living with obesity is a daily struggle and I'm reminded of it every day – from before my feet touch the floor in the morning, until I close my eyes at night. I am on a journey, travelling further away from obesity every single day," says Vicki Mooney.

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Investor Service
Enquiries and feedback concerning the Annual Report should be addressed to: annualreport@novonordisk.com

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:

JP Morgan Chase Bank, N.A.
PO Box 64504
St. Paul
Minnesota, MN, 55164-0504, US

Attention: Depositary Receipts Group
Tel +1 800 990 1135
Tel +1 651 453 2128
(From outside the United States)
jpmorgan.adr@wellsfargo.com

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Financial Statements of the Parent Company 2018

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	2018	2017
Net sales	2	84,752	76,887
Cost of goods sold	3	12,996	13,357
Gross profit		71,756	63,530
Sales and distribution costs	3	25,676	18,969
Research and development costs	3	13,308	12,785
Administrative costs	3	1,746	1,532
Other operating income, net		2,214	2,432
Operating profit		33,240	32,676
Profit in subsidiaries, net of tax	8	11,485	12,561
Financial income	4	1,970	1,678
Financial expenses	4	1,585	1,962
Profit before income taxes		45,110	44,953
Income taxes		6,580	7,080
Net profit for the year		**38,530**	37,873

Balance sheet

At 31 December

DKK million	Note	2018	2017
Assets			
Intangible assets	6	2,799	2,446
Property, plant and equipment	7	24,141	23,414
Financial assets	8	28,469	28,614
Total fixed assets		**55,409**	54,474
Raw materials		1,951	1,846
Work in progress		9,191	8,222
Finished goods		1,922	2,096
Inventories		13,064	12,164
Trade receivables		1,847	1,677
Amounts owed by affiliated companies		11,544	10,653
Tax receivables		884	783
Other receivables		1,001	627
Receivables		15,276	13,740
Derivative financial instruments		204	2,304
Cash at bank		14,472	17,511
Total current assets		**43,016**	45,719
Total assets		**98,425**	100,193
Equity and liabilities			
Share capital		490	500
Net revaluation reserve according to the equity method		11,116	14,585
Development costs reserve		1,083	1,072
Retained earnings		38,816	33,127
Total equity		**51,505**	49,284
Deferred income tax liabilities	5	137	856
Other provisions	9	739	863
Total provisions		876	1,719
Current debt		2	1,262
Derivative financial instruments		2,024	309
Trade payables		2,368	2,476
Amounts owed to affiliated companies		36,108	39,533
Tax payables		33	114
Other liabilities	9	5,509	5,496
Current liabilities		**46,044**	49,190
Total liabilities		**46,044**	49,190
Total equity and liabilities		**98,425**	100,193

Equity statement

DKK million	Share capital	Net revaluation reserve	Develop-ment costs reserve	Retained earnings	**2018**	2017
Balance at the beginning of the year	500	14,585	1,072	33,127	49,284	44,698
Appropriated from Net profit for the year				22,452	22,452	13,030
Total dividend for the year				19,547	19,547	19,206
Appropriated from Net profit for the year to net revaluation reserve		(3,469)			(3,469)	5,637
Effect of cash flow hedges transferred to the income statement				(1,820)	(1,820)	1,742
Fair value adjustments of cash flow hedges for the year				(1,506)	(1,506)	1,820
Interim dividends paid during the year				(7,238)	(7,238)	(7,396)
Dividends paid for prior year				(11,810)	(11,810)	(11,448)
Share-based payments (note 3)				199	199	115
Tax credit related to restricted stock units				(2)	(2)	14
Purchase of treasury shares				(15,567)	(15,567)	(16,845)
Reduction of the B share capital	(10)			10	—	—
Exchange rate adjustments of investments in subsidiaries				491	491	(632)
Development costs			11	(11)	—	—
Other adjustments				944	944	(657)
Balance at the end of the year	490	11,116	1,083	38,816	**51,505**	49,284
Proposed appropriation of net profit:						
Interim dividend for the year					7,238	7,396
Final dividend for the year					12,309	11,810
Appropriated to Net revaluation reserve					(3,469)	5,637
Transferred to Retained earnings					22,452	13,030
Distribution of net profit					**38,530**	37,873

Please refer to note 4.1 to 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. 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, pp 63–64.

No separate statement of cash flows has been prepared for the parent company; please refer to the statement of cash flows for the Group on p 59.

Supplementary accounting policies for the parent company
Financial assets
In the financial statements of the parent company, investments in subsidiaries and associated company are recorded under the equity method, using the respective share of the net asset values in subsidiaries and associated company. Net profit of subsidiaries and associated company less unrealised intra-Group profits is recorded in the income statement of the parent company.

To the extent that net profit exceeds declared dividends from such companies, net revaluation of investments in subsidiaries and associated company is transferred to Net revaluation reserve under Equity according to the equity method. Profits in subsidiaries and associated company are disclosed as profit after tax.

Fair value adjustments of financial assets categorised as 'Available for sale' in 2017 are recognised in the income statement.

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	2018	2017
Sales by business segment		
Diabetes and obesity	84,573	76,661
Biopharmaceuticals	179	226
Total sales	**84,752**	76,887
Sales by geographical segment		
North America Operations	47,942	42,332
Region Europe	14,445	13,911
Region AAMEO	8,490	8,542
Region China	8,962	7,308
Region Latin America	2,339	2,437
Region Japan & Korea	2,574	2,357
Total sales	**84,752**	76,887

Sales are attributed to geographical segment based on location of the customer. For definitions of segments, please refer to note 2.2 to the Consolidated financial statements.

3 Employee costs

DKK million	2018	2017
Wages and salaries	11,423	10,550
Share-based payment costs	199	115
Pensions	1,028	993
Other social security contributions	212	230
Other employee costs	346	376
Total employee costs for the year	13,208	12,264
Employee costs capitalised as intangible assets and property, plant and equipment	(362)	(306)
Change in employee costs capitalised as inventories	(112)	(90)
Total employee costs in the income statement	**12,734**	11,868

For information regarding remuneration to the Board of Directors and Executive Management, please refer to 'Remuneration' on pp 53–57 and note 2.4 to the Consolidated financial statements.

Average number of full-time employees	**16,244**	16,267
Year-end number of full-time employees	**16,094**	16,182

4 Financial income and financial expenses

DKK million	2018	2017
Interest income relating to subsidiaries	297	212
Income from associated company	40	54
Foreign exchange gain (net)	—	1,380
Financial gain from forward contracts (net)	1,300	—
Other financial income	333	32
Total financial income	**1,970**	1,678
Interest expenses relating to subsidiaries	483	230
Foreign exchange loss (net)	1,018	—
Financial loss from forward contracts (net)	—	1,031
Other financial expenses	84	701
Total financial expenses	**1,585**	1,962

5 Deferred income tax assets/(liabilities)

DKK million	2018	2017
Net deferred tax asset/(liability) at 1 January	(856)	268
Income/(charge) to the income statement	30	(229)
Income/(charge) to Equity	689	(895)
Net deferred tax asset/(liability) at 31 December	**(137)**	(856)

The Danish corporate tax rate was 22.0% in 2018 (22.0% in 2017).

6 Intangible assets

DKK million	2018	2017
Cost at the beginning of the year	4,765	3,777
Additions during the year	1,267	1,016
Disposals during the year	—	(28)
Cost at the end of the year	6,032	4,765
Amortisation at the beginning of the year	2,319	2,002
Amortisation during the year	914	150
Impairment losses for the year	—	195
Amortisation and impairment losses reversed on disposals during the year	—	(28)
Amortisation at the end of the year	3,233	2,319
Carrying amount at the end of the year	**2,799**	2,446

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	2018	2017
Cost at the beginning of the year	16,256	17,910	3,008	8,925	46,099	42,170
Additions during the year	177	314	149	2,151	2,791	4,431
Disposals during the year	(238)	(1,231)	(129)		(1,598)	(502)
Transfer from/(to) other items	2,945	2,070	202	(5,217)	—	—
Cost at the end of the year	19,140	19,063	3,230	5,859	47,292	46,099
Depreciation and impairment losses at the beginning of the year	6,785	14,062	1,838		22,685	21,345
Depreciation for the year	749	899	233		1,881	1,723
Impairment losses for the year	47	60	5		112	69
Depreciation reversed on disposals during the year	(216)	(1,187)	(124)		(1,527)	(452)
Depreciation and impairment losses at the end of the year	7,365	13,834	1,952	—	23,151	22,685
Carrying amount at the end of the year	11,775	5,229	1,278	5,859	**24,141**	23,414

8 Financial assets

DKK million	Investments in subsidiaries	Amounts owed by affiliated companies	Investment in associated company	Other securities and investments	2018	2017
Cost at the beginning of the year	8,933	4,667	153	652	14,405	12,816
Investments during the year		3,295		250	3,545	3,502
Divestments during the year		(530)	(48)	(95)	(673)	(1,913)
Cost at the end of the year	8,933	7,432	105	807	17,277	14,405
Value adjustments at the beginning of the year	30,967	(238)	100	(238)	30,591	26,281
Profit/(loss) before tax	15,329				15,329	16,129
Share of result after tax in associated company			40		40	54
Income taxes on profit for the year	(2,323)				(2,323)	(3,554)
Market value adjustment				129	129	(590)
Dividends received	(15,675)		(19)		(15,694)	(6,553)
Divestments during the year			(29)	73	44	22
Effect of exchange rate adjustment	348	353		(3)	698	(1,420)
Other adjustments	138				138	222
Value adjustments at the end of the year	28,784	115	92	(39)	28,952	30,591
Unrealised internal profit at the beginning of the year	(16,382)				(16,382)	(16,931)
Change for the year – charged to i ncome statement	(1,521)				(1,521)	(14)
Effect of exchange rate adjustment	143				143	563
Unrealised internal profit at the end of the year	(17,760)	—	—	—	(17,760)	(16,382)
Carrying amount at the end of the year	19,957	7,547	197	768	**28,469**	28,614

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 Other provisions

DKK million	2018	2017
Non-current	739	863
Current	441	272
Total other provisions	**1,180**	1,135

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 3.6 to the consolidated financial statements.

10 Related party transactions

For information on transactions with related parties, please refer to note 5.3 to the Consolidated financial statements.

11 Fee to statutory auditors

DKK million	2018	2017
Statutory audit	8	8
Audit-related services	3	2
Tax advisory services	4	3
Other services	2	3
Total fee to statutory auditors	**17**	16

12 Commitments and contingencies

DKK million	2018	2017
Commitments		
Operating leases	1,296	1,455
Research and development obligations	4,772	2,774
Research and development - potential milestone payments[1]	2,668	2,712
Purchase obligations relating to investments in property, plant and equipment	701	345
Other purchase obligations	5,057	6,281
Guarantees given for subsidiaries	9,898	9,269
Other guarantees	171	168
Operating leases expiring within the following periods from the balance sheet date		
Within one year	221	226
Between one and five years	704	708
After five years	371	521
Total operating leases	**1,296**	1,455
The operating lease costs for 2018 and 2017 were DKK 278 million and DKK 279 million respectively.		
Security for debt		
Land, buildings and equipment etc at carrying amount	—	—

1. Potential milestone payments are associated with uncertainty as they are linked to successful achievements in research activities, please refer to note 5.2 to 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 3.6 and 5.2 to the consolidated financial statements.