Seeing beyond

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Annual Report 2018/19 of the ZEISS Group

Seeing beyond
is not just about optics.
It's a question of attitude.

Seeing beyond
requires the courage
to overcome obstacles
on the road to a solution

Seeing beyond
combines insight with intuition
to shape the future

Seeing beyond

With the ZEISS brand, we make a promise to our customers. We keep that promise in the work we do every day as your reliable partner in the successful realization of your ambitions, entrepreneurial plans and complex tasks. This results in trust and appreciation, which form the most important basis for any promise. That basis is the prerequisite for a cooperation based on partnership.

In order to keep our promise and prove our trustworthiness time and time again, we approach the fulfillment of demanding and complex customer needs with an enormous capacity for innovation, with leading technologies and with sound application expertise. And with a very special attitude that distinguishes both us as a company and every Zeissian individually. This attitude, too, is expressed in our brand identity: 'Seeing beyond'.

Financial Highlights
(IFRSs)

	2018/19		2017/18		2016/17	
	€ m	%	€ m	%	€ m	%
Revenue	**6,428**	**100**	5,817	100	5,348	100
» Germany	663	10	610	10	621	12
» Other countries	5,765	90	5,207	90	4,727	88
Research and development expenses	**705**	**11**	642	11	552	10
EBIT	**1,063**	**17**	772	13	770	14
Consolidated profit/loss	**748**	**12**	535	9	561	10
Cash flows from operating activities	**770**		576		445	
Cash flows from investing activities	**-635**		-334		-642	
Total assets	**9,142**	**100**	7,903	100	7,317	100
Property, plant and equipment	**1,466**	**16**	1,028	13	973	13
» Capital expenditures	437		244		183	
» Amortization, depreciation and impairment	234		164		160	
Inventories	**1,622**	**18**	1,391	18	1,275	17
Equity	**3,990**	**44**	3,763	48	3,429	47
Net liquidity	**1,548**		2,120		1,986	
Employees as of 30 September	**31,260**		29,309		26,945	
» Germany	13,310		12,067		11,339	
» Other countries	17,950		17,242		15,606	

For more information, go to:
www.zeiss.com/annualreport

Content

Executive Board of Carl Zeiss AG

Prof. Dr. Michael Kaschke
President and CEO

Dr. Karl Lamprecht
CEO of the Semiconductor Manufacturing Technology segment[1]
Designated President and CEO[3]

Dr. Matthias Metz
CEO of the Consumer Markets segment

Dr. Ludwin Monz
CEO of the Medical Technology segment

Dr. Christian Müller
CFO

Dr. Jochen Peter
CEO of the Industrial Quality & Research segment

Dr. Markus Weber
CEO of the Semiconductor Manufacturing Technology segment[2]

[1] Until September 30, 2019
[2] From October 1, 2019
[3] From April 1, 2020

Foreword by the Executive Board

Ladies and Gentlemen,
Dear Friends of ZEISS,

For ten consecutive years, ZEISS has continued to grow. On top of that, we have exceeded a new record: our sales rose by 11 percent to EUR 6.4 billion (previous year: EUR 5.8 billion). The ZEISS Group's EBIT also reached a new high of EUR 1.1 billion (previous year: EUR 772 million).

In the context of an uncertain economic climate and major structural changes in various industries, ZEISS's development is particularly remarkable. ZEISS was prepared for these scenarios and, with its ZEISS Agenda 2020 corporate strategy, has positioned itself to be both future-proof and resilient. With our well-balanced portfolio and focus on future markets, we were able to grow faster than the market in all four segments in addition to generating outstanding sales and returns on a sustainable basis.

This continuing success also reflects the long-standing trust of our customers and partners. On behalf of the Executive Board, I would like to express my sincere gratitude for this confidence. Our thanks also go to our dedicated employees who work hard to earn this trust on a daily basis.

This year's results in detail
All four ZEISS segments demonstrated outstanding development over the past fiscal year. In particular, the Medical Technology and Semiconductor Manufacturing Technology segments delivered above-average growth, as did the Consumer Markets segment. The Industrial Quality & Research segment felt the economic headwind in some areas, but was also able to make good contributions to growth.

This past fiscal year, we again increased investments for our research and development activities, which accounted for 11 percent of total sales. ZEISS has a long tradition of similarly high expenditures for research and development which also represent our insurance for the future. Only through such investment can we maintain and enhance our reputation as a global technology leader.

Compared to its competitors, ZEISS also succeeded in the field of digitalization, which is now an important consideration for all companies. For example, our innovative ZEISS VISUFIT 1000 system offers opticians an expandable platform for digital facial and centering data acquisition. The customer-oriented system maps the entire process: from measuring the eye to selecting the frame. I would also like to mention the ZEISS ARTEVO 800, the first fully digital microscope for ophthalmic surgeons, with which we are heralding a new era in ergonomic surgery.

Our targeted investments in growth markets are now paying off. We have grown organically with our own highly innovative products and have strategically developed our portfolio with targeted acquisitions. The acquisition of IanTECH, Reno (USA), which was completed last year, added new solutions for minimally invasive cataract surgery to our portfolio and thus further strengthened our position as an innovation leader in ophthalmology. In April 2019 we acquired GOM, a leading provider of hardware and software for automated 3D coordinate metrology headquartered in Braunschweig, Germany. With GOM, we aim to significantly expand our offer in the field of industrial measurement technology and quality assurance with leading solutions for surface measurement and digitalization.

We have also continued to consistently invest in our employees. Education and training don't just play a key role when it comes to ensuring our competitiveness. As a foundation-owned company, we also bear a special responsibility for training our employees. Over the past fiscal year, we met this responsibility through a large number of activities and initiatives. We are now establishing the company's future-oriented e-learning platform ZEISS CurioZ in order to promote the expansion of expertise, knowledge and skills in a targeted way using innovative formats and offerings. In the past fiscal year, 454 trainees and university students were trained at ZEISS in Germany – 59 more than the previous year.

ZEISS continues to focus on continuity and growth

The economic uncertainties of recent times have once again prompted us to make sure the company becomes significantly more productive, more adaptable and more resilient. The programs already launched in this area are having an impact, but we will continue to pursue them intensively and implement them consistently. ZEISS intends to continue its growth course in the 2019/20 fiscal year through the clear strategic orientation provided by the ZEISS Agenda 2020 and the sound positioning of our segments in relation to future markets. The company and the ZEISS brand are in very good shape and we have the skills and the strength for agile change.

As a foundation-owned company, we have a clear mandate to ensure that responsibility and accountability are integrated in our organization. For this reason, we are making sustainability a fundamental component in our segments' business activities. To this end, we have defined specific goals and measures that will have an immediate effect to be implemented by 2022.

Shaping the future

We are looking to the future with confidence. As a modern and innovative foundation-owned company, we have all the prerequisites required as well as the strength and courage, to identify our customers' needs at an early stage and to enable them to find success with our solutions. This allows us to shape the future.

We see digitalization as an opportunity because we can use it to create customer benefits. Sustainability is one of our responsibilities and we see becoming a climate-neutral company as a matter of course. We are making a real difference by taking concrete measures to reduce CO_2 emissions and protect the climate. This strategic optimism is summed up in "Seeing beyond". We are tackling the challenges of the future today – with self-confidence and honesty.

I would like to personally thank all our customers, employees, colleagues and the Supervisory Board for their support. When ZEISS presents its next year-end results in fall 2020, I will already have handed over the baton to my fellow Executive Board member Dr. Karl Lamprecht. This change at the head of the company will help us focus on continuity and the continuation of sustainable growth.

Stay connected with ZEISS!

Warm regards,

Prof. Dr. Michael Kaschke
President and Chief Executive Officer

Shaping the Future with Solutions
Segments of the ZEISS Group

The ZEISS Group is one of the world's leading technology companies. It has a balanced portfolio that is geared toward attractive future-oriented markets in optics, precision mechanics and optoelectronics. For more than 170 years, the company has been shaping technological progress, advancing the world of optics with solutions from its four segments and responding its customers' requirements.

Semiconductor Manufacturing Technology

- **Semiconductor Manufacturing Optics**
- **Semiconductor Mask Solutions**
- **Process Control Solutions**

Industrial Quality & Research

- **Industrial Quality Solutions**
- **Research Microscopy Solutions**

Medical Technology

- **Ophthalmic Devices**
- **Microsurgery**

Consumer Markets

- **Vision Care**
- **Consumer Products**

Semiconductor Manufacturing Technology
Today, a large proportion of all microchips are produced using ZEISS technologies. As a technology leader in the field of semiconductor manufacturing equipment, ZEISS enables the production of ever smaller, increasingly powerful, more energy-efficient and more economical microchips, and thus plays a pivotal role in the age of microelectronics.

Industrial Quality & Research
ZEISS assures quality standards and enables scientific research wherever maximum precision is indispensable: with coordinate measuring machines, metrology software and microscope systems for research and the inspection of materials. ZEISS plays its part by ensuring that even the tiniest structures and processes become visible.

Medical Technology

With its products and solutions for ophthalmology, neurosurgery, ENT surgery, spine surgery, dentistry and oncology, ZEISS helps drive progress in medicine and assists doctors all over the world in enhancing their patients' quality of life.

Consumer Markets

As one of the world's leading manufacturers of eyeglass lenses, ZEISS stands for maximum visual comfort. ZEISS movie and camera lenses, binoculars, spotting scopes and riflescopes offer users with exacting requirements outstanding optical quality – and, as a result, unforgettable moments.

From Inspiration to Application

A meeting of minds

Dr. Gérard Mourou, professor at the École Polytechnique and Physics Nobel Laureate, Prof. Dr. Michael Kaschke, ZEISS President and CEO, and Prof. Dr. Andreas Tünnermann, Head of the Fraunhofer Institute for Applied Optics and Precision Engineering (IOF) and Director of the Institute of Applied Physics at the University of Jena, discuss the interdependence of basic science, applied research, and the research being conducted in the industry. The three of them met after the opening of the Max Planck School of Photonics in Jena, where they discussed high-power lasers and how they have redefined basic science, engineering, and medical treatments for patients.

As representatives of basic, applied, and industrial research, what do you feel you have in common?

Prof. Kaschke: At the heart of any scientific discovery or innovation lies an approach characterized by problem-solving, an openness for new challenges, and sheer curiosity. This approach is just one element of what we call 'Seeing beyond', which is the mindset that we here at ZEISS believe is the right mindset for a leading company. It is a mindset to go curiously where others have not gone before, to look ahead and tackle problems that may only be emerging. I believe this fascinates all three of us here today – we simply represent this mindset in different ways.

Prof. Tünnermann: I think that's very true. The discovery of chirped pulse amplification (CPA) by Gérard Mourou and his colleagues exemplifies how breakthroughs in science that are based on this openness can lead to transformative applications, for example in laser eye surgery, which ZEISS pioneered.

Professor Mourou, looking back at the time you and your team made the breakthrough that later won you the Nobel Prize shows how fast paradigms can change. Wouldn't you agree?

Prof. Mourou: That's true. It's funny to think back to the reactions I received in 1988 when I talked about chirped pulse amplification (CPA) producing terawatts. People did not believe I was talking seriously. At the time, a high-power laser was measured in gigawatts (10^9 W), and I was starting to talk about terawatts (10^{12} W). This was at the University of Rochester, where the terawatt lasers took up an entire building. CPA then brought us tabletop terawatt lasers.

How long did it take to come up with feasible applications?

Kaschke: The time it took to move from these breakthroughs to an application, for instance in ophthalmology, was actually quite short. Even back then, our typical timeframe from lab to market was 15 years, which is what we call the three-times-five-years rule. This entails five years for prototypes, five years for clinical trials, and five years for market acceptance. I think this is a fine example of the amount of work you have to put in before you're really ready to exploit a discovery.

"Seeing beyond is a mindset to go curiously where others have not gone before, to look ahead and tackle problems that may only be emerging."

Prof. Michael Kaschke

Mourou: Don't discount the role of luck! In our case working with the cornea, it all began by accident. You may not know this, but one of my students was working on the first high-power systems and the laser beam came into contact with his eye. We took him to the hospital where we were told that, fortunately, the retina had not been affected, but the "cut" on the cornea was perfect. This was in around '93 – medical applications came to market about 10 years later. This took time because, as Michael said, first we had to conduct all the medical trials.

Kaschke: You've just made a very profound point, Gérard. The systematic process that enables us to search for discoveries is vital, but we must not forget the equally important and vital element of luck. That's why we must learn from any mistakes and recognize that these are needed to ultimately make discoveries and create innovations.

Is the same true for applied research?

Tünnermann: Looking at the learning element in innovation, I can easily now say that applied research comes along

Physics Nobel Laureate Prof. Dr. Gérard Mourou talks to ZEISS President and CEO Prof. Dr. Michael Kaschke during the opening of the Max Planck School of Photonics in Jena.

with trial and error aiming for learning and growing. Providing an environment where you can best learn from failure, is the mission of Fraunhofer IOF.

Kaschke: Indeed we need a culture of knowledge inquiry and sharing.

Professor Mourou, can you tell us a bit more about the frontiers of today's extreme laser physics, 30 years after CPA?

Mourou: Well, it is still about achieving higher and higher power in laser development. Today we have petawatt lasers (10^{15} W), which offer greater performance than all the power stations in the world can produce, but just for a short time. In the future, we will probably see exawatt lasers and then we will have tabletop proton accelerators.

Kaschke: When do you think we will integrate such a laser-based proton accelerator in real-world applications – in medical applications, say? Will it be another 10–15 years before we see any clinical applications?



Mourou: Laser proton accelerators are already around today, and we can use them to produce protons. But the maximum proton energy is something like 1,000 MeV. For therapy you'll need higher energies. One possible approach I am looking at are shorter pulses – perhaps not much shorter but a single cycle. So I'd say 10–15 years is a realistic time frame.

Looking at the end of this continuum, from basic science to industry, what exciting developments can we expect to see at ZEISS and in the optical and photonics industry in general?

Kaschke: There's a lot of exciting stuff happening, first and foremost in biomedical and lithography technologies. We are talking a lot about protons because of how lasers, and especially high-power femtosecond lasers based on CPA, have made their way into very precise tissue manipulation. I call this the "art of precise surgery." At some stage we will probably be using semi-robotic lasers that may allow surgeons to perform operations on an almost cellular level. This once again calls for shorter wavelengths because ultimately we have to think about how we can work inside the cell.

Right now the focus is on multi-cellular surgery, but the interesting thing is how to get really close to a disease, i.e. how can we "operate" inside a cell.

With regard to lithography, EUV allows us to go down to a one-two nanometer structure size. Ten, fifteen years from now, we will be getting closer to the atomic level. This is going to be very interesting, especially from a fundamental science perspective.

Tünnermann: That's absolutely fascinating from a scientific point of view, so to go from structures for electronic applications right through to the atomic level.

Kaschke: Absolutely! In my opinion this is still more than ten years away, so we will see a couple of iterations before then. An interesting question is whether this will revolutionize electronics as we know it.

Tünnermann: A lot of people are talking about quantum technologies as the field of the future.

Kaschke: You cannot have quantum technology without optics and photonics. I see quantum sensing coming, as well as quantum microscopy. I'm somewhat less optimistic than many others about the timescale for the widespread use of quantum computing; I still see this as being several years away. But when it comes to quantum states used for sensing or even imaging, I believe we're much closer to achieving those.

Professor Tünnermann, at the Fraunhofer IOF you are developing fibers for the next generation of high-performance lasers. What are the potential applications?

Tünnermann: At the Fraunhofer IOF, we are currently developing a generation of optical fibers that will open up unique possibilities for controlling light. The focus is on active fibers, for example for the generation of ultra-short high-energy pulses in fibers.
Another area we're focusing on is on developing concepts for transport fibers that guide laser beams with very high powers across large distances. Similar to the revolution in laser material processing with a combination of glass fibers and solid-state lasers in the 1990s, in the future optical fibers will distribute the energy of ultra-short-pulse lasers and drive completely new applications. This requires light transmission where the pulse is not affected by interaction with the fiber. One example of this are hollow-core fibers that guide light in air and thus minimize unwanted effects during transmission.

Kaschke: This is a good example of how extreme physics is putting new demands on technology. It's also another point where our worlds of science and industry

"You cannot have quantum technology without optics and photonics."

Prof. Michael Kaschke

converge, and is what I often call the Apollo effect: you go in one direction with your research but you encounter challenges in a different direction and you need engineers to clear the path, which then opens up new directions for research.

The example I always give is the manufacturing technology that we use for the extreme ultraviolet (EUV) mirrors, which was actually developed one or two decades ago for X-ray satellites in space. It was an astronomy project that wasn't really a commercial success for ZEISS but, in terms of expertise and development, was very important. These "by-products" occur when you push the boundaries of physics. This is why what you're doing, Gérard, is already really extreme physics because you're basically probing totally new energy levels, and this will have an impact on applied research, and even engineering.

Tünnermann: Yes, and let's not forget that the new reality in research and in applying our insights to customer applications is not linear, but far more complex and dynamic. We need to keep that field open.

Kaschke: Absolutely, and that's why I firmly believe that "rotating" people between science and industry wherever possible – for example through exchange and sabbatical programs – can benefit everyone. It is this change of perspectives that opens up new horizons. I think institutions like Fraunhofer are perfect for this. This is where basic and industrial research come together and can be integrated into applications.

Professor Mourou, did you ever think about creating your own company based on CPA?

Mourou: No. These are two very different things. I enjoy research but I also know about the amount of work it takes to establish a company – especially in the medical field. I saw this for the company, IntraLase, which I was involved with.

Kaschke: Would you encourage your students to go down this route?

Mourou: Yes, I probably would. But you have to be very careful because when you're a student in a lab and you have all the equipment you need, it's very easy and you think you're in a perfect world. But in business and in product development, you have to take into account many requests from different players and sometimes even conflicts of interests. It's a completely different situation.

Kaschke: I think institutions like Fraunhofer IOF or the new ZEISS Innovation Hub at KIT in Karlsruhe can play a vital role in bridging this gap in knowledge transfer, from fundamental science to industry.

Tünnermann: Fraunhofer is a unique platform and a kind of institution that probably only exists in Germany and a few other countries in Europe. It is an accelerator that will ensure this interplay remains intact in the future. We can be very close to applied fundamental research, do fundamental research ourselves, but also have an understanding of how to transfer it and have an established relationship with industry and industrial development.

Kaschke: That's the nice thing about this interplay. One player pushes in one direction, the others follow for a while and then discover new things – and we all learn something.

Mourou: That's right, absolutely!

Thank you for your time.

Photography: Dominik Gigler

You can find further information about Prof. Gérard Mourou, Prof. Andreas Tünnermann, high-power lasers and CPA on **www.zeiss.com/annualreport.**

Highlights from Fiscal Year 2018/19

Thanks to its long-term investment strategy, balanced portfolio, international footprint and globally oriented value chains, the ZEISS Group is looking forward to a bright future. In the previous fiscal year, targeted investments helped ZEISS shape the future. Here are just some of the highlights from fiscal year 2018/19.

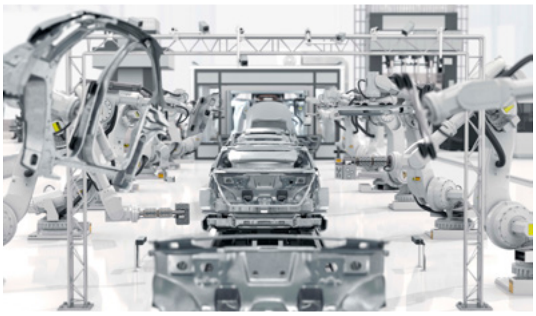
A new digital age in visualization
The ZEISS TIVATO 700 and ZEISS EXTARO 300 offer users access to augmented visualization methods that go far beyond white light and open up new possibilities in neurosurgery/ENT surgery through their digital functions. Both systems enable ZEISS to offer customers future-oriented technologies.

A small click on the shutter release – and a giant leap in photography for mankind
Even 50 years after the moon landing on July 20, 1969, the pictures taken that day are as fascinating as ever. The fact that this event has become so firmly anchored in people's memories is mainly down to the unique photos from the Apollo missions. The first pictures taken on the surface of the moon, as well as the view from the moon back to Earth, continue to inspire generations. And the lenses for the cameras used on every mission were made by ZEISS.

Topping-out ceremony for new high-tech site in California
ZEISS has completed the building construction for its state-of-the-art high-tech location in the San Francisco Bay Area with a topping-out ceremony. The new location in Dublin, California is an integral part of ZEISS's global investment strategy and is part of a whole range of international projects aimed at expanding, modernizing and realigning sites that ZEISS has also been implementing in Germany, Europe and Asia since 2011.

GOM joins the ZEISS Group
GOM, a leading provider of hardware and software for automated 3D coordinate measuring technology, is joining the ZEISS Industrial Quality & Research Segment. We intend to further develop our leading technological position together, particularly in the field of optical digitalisation systems. The combination of existing products and solutions with the joint development of new products will provide a foundation for shaping and opening up new markets.

Multifunctional smart glass
ZEISS has developed a technology that, for the first time ever, makes it possible to add smart functions to transparent glass or plastic over large areas and in a host of different ways. The transparent surfaces with integrated, invisible microstructured optics permit a wide range of different applications. For example, the glass panels in the windows of a smart home can perform monitoring duties, measure temperature or display information.

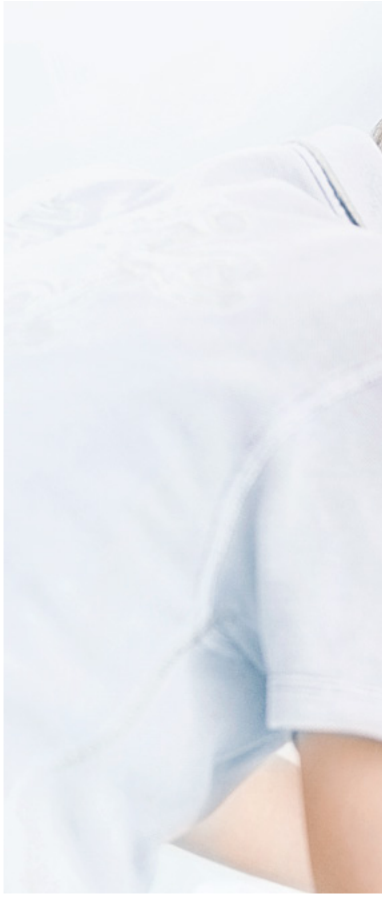


New possibilities with 5G
5G will enable a wide range of sensor, management and quality data to be generated, assessed, and transferred in networked production. Machines and systems will be able to communicate directly with each other. This will provide new opportunities to achieve more flexibility, transparency, and automation in production while further increasing quality.

ZEISS ranked best company in the 2019 Public Value Atlas
Receiving the top ranking underscores the company's positive development, including its efforts to fulfill the mission enshrined in the Carl Zeiss Foundation Statute for the past 130 years: economic success and innovation to serve society with meaningful employment and scientific and technical progress. Today, ZEISS is also driving technological progress to improve people's lives around the globe.

Outcome of the architectural competition for a high-tech site in Jena
The design depicts ZEISS as a vibrant, well-integrated company that also stands for openness and networking. The attributes of openness, modernity and flexibility are brought to life through the building's structure, surface design and visual language. Scalability and flexibility that will ensure good working conditions for the next 30 years and beyond are integral parts of the design.

Corporate Responsibility



For ZEISS, business success is directly linked to corporate responsibility. The Statute of the Carl Zeiss Foundation has served as our guideline for 130 years. Across five fields of action, ZEISS is building on its historical values and defining its responsibility for ensuring sustainable development.

Integrity and compliance
Business activities that are compatible with statutory regulations and internal rules are an integral part of the open and respectful corporate culture at ZEISS. For this reason, legality, fair competition and the equitable treatment of business partners and employees are indispensable elements of successful business operations. A compliance management system ensures that any errors are identified and corrected.

Available in 14 languages

the e-learning module on compliance topics can be accessed by employees all around the world.

Products and value chains
Product solutions by ZEISS contribute to medical advances in eye care, neurosurgery and ENT surgery, and support doctors as they improve their patients' quality of life. ZEISS eyeglass lenses improve the eyesight of people all around the world. Intelligent measuring systems by ZEISS help increase efficiency at many different companies. But product responsibility means more than simply delivering innovative, effective, and safe products. For ZEISS, it also includes responsible value chain creation – from raw materials to product sales.

Around 50 percent

of the external purchasing volume is covered by key strategic suppliers. These suppliers must accept the Responsible Business Alliance's Code of Conduct and forward it to their subcontractors.

Employees
Precision, innovation, and unparalleled quality can only be achieved with motivated and qualified employees.
ZEISS invests continually in the promotion and professional development of its employees and positions itself as an attractive employer in the competition for talented individuals. The company benefits from its reputation as a global and innovative foundation-owned company with a strong focus on values that have been enshrined in the corporate culture.

62 million euros

contributed to the ZEISS company pension in fiscal year 2018/19.

Environment

Effective environmental protection and the responsible use of resources are important concerns for the ZEISS Group. ZEISS continues to work on reducing its consumption and emissions and has set specific reduction targets to do so. In order to achieve this, ZEISS pays attention to the efficient use of materials and energy from product development through to customer application. When selecting and using raw materials, technologies and production processes, ZEISS considers their environmental compatibility. Wherever possible, potentially hazardous materials are replaced with less problematic substances.

31 business units

at 15 ZEISS Group production facilities were certified in accordance with the environmental management system ISO 14001 in 2018/19.

Social and societal engagement

As part of its responsibilities as a foundation-owned company, ZEISS promotes scientific and technological progress and campaigns for better living conditions worldwide. Through the Carl Zeiss Promotion Fund, the company supports social projects, initiatives and facilities at its main sites in Germany.

Not only do children suffering from albinism have to protect their skin from the sun, their eyes are also very sensitive to light. ZEISS provides support to a home in Tanzania where experts examine children with albinism and provide them with eyeglasses featuring special filters for their light-sensitive eyes, thus allowing them to lead more independent lives.

EUR 1.1 million

in funding for around 150 social projects at the sites in Germany.

ZEISS provides support to a home in Tanzania where experts examine children with albinism and provide them with eyeglasses featuring special filters for their light-sensitive eyes.

For more information, go to:
www.zeiss.com/responsibility and stories.zeiss.com/en/looking-ahead/

Worldwide Representation

A lot has happened since ZEISS opened its first branch outside Germany in London in 1893. Today, the ZEISS Group is represented in almost 50 countries. Over 31,000 employees worldwide work at around 30 production sites, 60 sales and service locations and 25 research and development facilities. The company is headquartered in Oberkochen (Baden-Württemberg, Germany).

Around
100
sites
worldwide

Directly represented in almost
50
countries

Over
31,000
employees worldwide

517
trainees
worldwide

9,400
patents worldwide

3,641
employees
in research and development

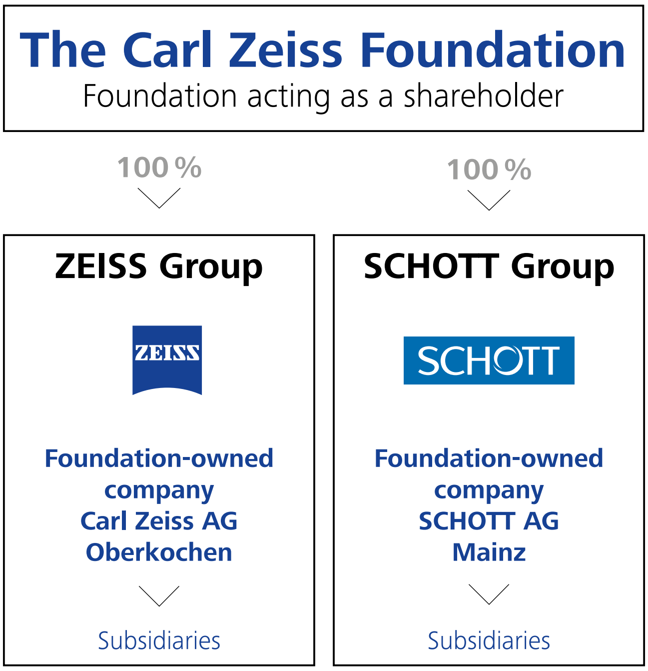
More than
1,000
new jobs created in the fiscal year 2018/19

More than
13,000
employees
in Germany

The Carl Zeiss Foundation

Promoting science

The Carl Zeiss Foundation is the sole shareholder of Carl Zeiss AG. This special ownership structure ensures stability and enables the company to work towards long-term prospects. The Foundation Statute prohibits the sale of shares through, for instance, an initial public offering. For that reason, the company's shares are not listed on any stock exchange.



In 1889, the physicist and entrepreneur Ernst Abbe created the Carl Zeiss Foundation to which both Carl Zeiss AG and SCHOTT AG belong. The objectives of the foundation stipulated by Abbe remain valid to this very day:

» To responsibly manage and safeguard the future of the two foundation-owned companies
» To fulfill its special responsibility toward employees
» To meet its responsibility to society through the commitment of its member companies to non-profit activities in their areas.
» To promote science

With this unique corporate model, the Carl Zeiss Foundation and its two member companies made industrial and social history in Germany. Since 2004, the foundation has received dividends of EUR 246 million from Carl Zeiss AG in order to achieve its goals. The Foundation uses the dividends generated by Carl Zeiss AG and SCHOTT AG to promote science – particularly the natural and engineering sciences, mathematics and information technology at universities in the German federal states of Baden-Württemberg, Rhineland-Palatinate and Thuringia. Today, the Carl Zeiss Foundation is one of Germany's largest foundations focused on the promotion of science.

For more information, go to:
https://www.carl-zeiss-stiftung.de/english/

Report by the Supervisory Board

Prof. Dr. Dieter Kurz

Dear All,

ZEISS has experienced growth for the tenth year in succession, beating both the markets and its competitors in many areas. ZEISS is on course with the ZEISS Agenda 2020 and has managed to impress both long-standing and new customers with its unbridled innovative strength. The positive development of all key performance indicators is a remarkable success – even without considering the background of increasing global uncertainties.

In the past fiscal year the Supervisory Board oversaw and advised the Executive Board in accordance with the duties entrusted to supervisory boards by law, the articles of association and rules of internal procedure. The Executive Board provided us with written and verbal information about the business situation and development, current profits, current risk factors and risk management, short-term and long-term planning, investments and organizational measures. I was in close contact with the Executive Board and received regular information about the development of the business situation and important business transactions. The Supervisory Board was involved in all decisions of importance for ZEISS and passed the resolutions required by law, the articles of association and our internal procedures. Our decisions were based on the reports and decisions proposed by the Executive Board, which we subjected to in-depth scrutiny. The Executive Board and Supervisory Board have joined forces to ensure ZEISS continues to develop successfully.

Subjects of the Supervisory Board meetings

The Supervisory Board held five meetings during fiscal year 2018/19. In December 2018, in addition to the annual financial statements, ZEISS's acquisition strategy was discussed. With this strategy, we aim to acquire highly innovative solutions, technologies and companies in a targeted manner. In particular, we intensified the strategic expansion of the Industrial Quality & Research segment's portfolio. The exceptional meeting that followed in March 2019, for example, was also significantly shaped by the decision to acquire GOM, a leading provider of hardware and software for automated 3D coordinate-measuring technology headquartered in Braunschweig, Germany. Following the election of the employee representatives in March 2019, the Supervisory Board also reconstituted itself at this meeting.

At the meeting in May 2019, specific measures and programs were presented to make the company more robust, reliable and resilient through innovations and a broader customer base. The resolutions will help us to act even more effectively in the future and to invest even more successfully in research and development, as well as in infrastructure such as buildings and IT. This will improve ZEISS's overall resilience to economic fluctuations.

In the July 2019 strategy meeting, the Executive Board presented a clear strategic plan that continues the long-term positive development of the individual segments with the support of the management and employees.

The budget plan for 2019/20 was approved in September 2019 at the fifth meeting of the board. The acquisition of SAXONIA Systems AG, Munich, was also approved in order to accelerate the company's increasing digitalization.

The detailed proposal for the course and schedule of the project, as well as the budget for realizing the ZEISS high-tech location project in Jena, was also approved. The Supervisory Board fully supports the clear intentions to look forward and invest in the future of ZEISS.

Changes to the Executive Board

Stability and continuity in the management of the company are central concerns of the Supervisory Board. At the last Supervisory Board meeting of fiscal year 2018/19, a resolution was passed to arrange a successor for Prof. Dr. Michael Kaschke, who will not extend his appointment as Carl Zeiss AG CEO after it expires in 2020. Dr. Karl Lamprecht, currently the Executive Board Member responsible for the ZEISS Semiconductor Manufacturing Technology segment, will become the new President & CEO effective April 1, 2020. Dr. Markus Weber has been appointed as the new Member of the Executive Board responsible for the ZEISS Semiconductor Manufacturing Technology segment, effective from October 1, 2019.

Under the leadership of Michael Kaschke, the ZEISS Group's Executive Board team has developed and implemented forward-looking strategies. These have led to above-average growth and sustainable value creation at ZEISS for an entire decade. The company has a highly attractive business portfolio and is in an excellent position. The ZEISS Group is continuing to develop from a technology leader with a global reputation to a company that actively shapes its customers' markets. For this, we would like to extend our special thanks to Michael Kaschke.

Work of the Supervisory Board committees

The Audit Committee met three times as scheduled. It evaluated the efficacy of risk management and discussed subjects such as compliance, internal auditing, the internal control system, accounting and the key issues of the annual audit and the annual financial statements. The Chairman's Committee also convened three times. At the meetings, preparations for personnel decisions were made and the reallocation of business was discussed in connection with the changes to the Executive Board. The achievement of targets and Executive Board remuneration were subjected to regular review. In the Supervisory Board meetings, the Chairmen of the Audit and Chairman's Committees provided regular reports on the work of their committees. The Mediation Committee did not convene during the year under review.

Changes to the Supervisory Board

Manfred Wicht left the Supervisory Board on March 18, 2019. The long-standing Chairman of the Group Works Council and Deputy Chairman of the Supervisory Board did not stand for reelection and retired. Michael Kramer followed in his footsteps in accordance with the results of the employee elections to the Supervisory Board. Andreas Kopf, who had previously been appointed by the board, was also elected to his position. Eva-Maria Menzel also left her position on the Supervisory Board on September 30, 2019 due to her retirement. Her successor was Silke Müller. We would like to thank Ms. Menzel and Mr. Wicht for their great work on the Supervisory Board and on the committees of the Supervisory Board.

Audit of the annual and consolidated financial statements

Auditing firm Ernst & Young GmbH, Stuttgart, has audited the consolidated financial statements of Carl Zeiss AG, including the Management Report, for fiscal year 2018/19 prepared pursuant to Sec. 315e (3) of the German Commercial Code (HGB) in accordance with International Financial Reporting Standards (IFRS) and issued an unqualified auditor's report in each case. Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, also audited the dependent company report prepared by the Executive Board.

All members of the Supervisory Board received the independent auditor's documents and audit reports in good time. We closely examined the documents and discussed them in detail at the meeting of the Audit Committee on December 9, 2019 and at the Supervisory Board meeting held on December 10, 2019. The independent auditor attended both meetings, presented the major results of the audit, provided supplementary information and answered questions. At the plenary assembly, the Chairman of the Audit Committee reported on the result of the examination of the consolidated financial statements by the Audit Committee. After examining the documents, the Supervisory Board endorsed the results obtained by the auditor and approved the financial statements prepared by the Executive Board. The Carl Zeiss AG financial statements were thereby adopted, effective 30 September 2019.

Pursuant to Sec. 312 German Stock Corporations Act (AktG), the Executive Board has prepared the above-mentioned dependent company report for the period from October 1, 2018 to September 30, 2019. The independent auditors have issued the following opinion on the findings of their audit of the dependent company report: "Based on our audit, which was carried out in accordance with professional standards, we confirm that

1. The actual disclosures contained in the report are correct
2. The payments made by the Company in the legal transactions listed in the report were not unreasonably high."

The Supervisory Board agreed with the results of the audit presented by the independent auditors. Following the final result of the review by the Supervisory Board, there were no objections to the Executive Board's concluding statement in the dependent company report.

In addition, the Auditing Committee was presented with a separately published non-financial Annual Report of Carl Zeiss AG. The Non-Financial Report was submitted for a voluntary audit by the auditing firm PricewaterhouseCoopers GmbH (PwC) in Munich to obtain limited assurance. As per the recommendation of the Auditing Committee, the Supervisory Board confirms the adherence of the non-financial report for the ZEISS Group to the CSR Guideline Implementation Law (EU Directive 2014/95/EU) and approves it.

The Executive Board's proposal to pay a dividend of EUR 75 million from its net income to the sole shareholder, the Carl Zeiss Foundation, was approved.

On behalf of the Supervisory Board, I would like to thank the members of the Executive Board and all ZEISS employees. Thanks to their ambitious work, courage and commitment, ZEISS is extremely well equipped for the future.

Oberkochen, December 2019
On behalf of the Supervisory Board

D. Kurz

Prof. Dr. Dieter Kurz
Chairman of the Supervisory Board:

Supervisory Board of Carl Zeiss AG

Supervisory Board of Carl Zeiss AG

Dr. Dieter Kurz | Lindau
Chairman
Chairman of the Shareholder Council of the Carl-Zeiss-Stiftung, Heidenheim an der Brenz and Jena

Manfred Wicht[1] | Königsbronn
Until March 18, 2019
Deputy Chairman
Development Engineer for Carl Zeiss Vision GmbH, Aalen

Roland Hamm[1] | Aalen
From March 18, 2019
Deputy Chairman
First Authorized Representative of the IG Metall union, Aalen Administration Office

Hariolf Abele[1] | Aalen
Deputy Chairman of the Employee Representative Council of Carl Zeiss Industrielle Messtechnik GmbH, Oberkochen

Prof. Dr. Martin Allespach[1] | Kelkheim
Director and Head of the European Academy of Labour at the University of Frankfurt am Main

Gerhard Bösner[1] | Aalen
Chairman of the Employee Representative Council of Carl Zeiss SMT GmbH, Oberkochen

Dr. Klaus Dieterich | Stuttgart
Former President of the Corporate Sector for Research and Advance Engineering at Robert Bosch GmbH, Stuttgart

Angelika Franzke[1] | Oberkochen
Chairman of the Group Employee Representative Council of Carl Zeiss AG, Oberkochen

Dr.-Ing. Mathias Kammüller | Gerlingen
Managing Partner of TRUMPF GmbH + Co. KG, Ditzingen

Andreas Kopf[1] | Bad Wurzach
Head of Shared Services Consolidation and Accounting at Carl Zeiss AG, Oberkochen

Dr. Joachim Kreuzburg | Hannover
CEO and Chairman of the Executive Board of Sartorius AG, Göttingen

Dr. Carla Kriwet | Hamburg
Chief Executive Officer of Connected Care and Health Informatics at Philips, Andover

Eva-Maria Menzel[1] | Jena
Deputy Chairwoman of the Employee Representative Council of Carl Zeiss AG, Jena site

Prof. Jürgen Mlynek | Berlin
Former President of the Helmholtz Association of German National Research Centers,Berlin

Dr. Lothar Steinebach | Leverkusen
Former Member of the Management Board of Henkel AG & Co. KGaA, Düsseldorf

Dr. Eberhard Veit | Göppingen
Managing Partner of 4.0-Veit GbR, Göppingen

Michael Kramer[1] | Jena
From March 18, 2019
Production supervisor at Carl Zeiss Jena GmbH, Jena

Committees of the Supervisory Board

Chairman's Committee
Dr. Dieter Kurz (Chairman)
Dr. Klaus Dieterich
Roland Hamm[1]
Manfred Wicht[1] until March 18, 2019
Angelika Franzke[1] from March 18, 2019

Audit Committee
Dr. Lothar Steinebach (Chairman)
Hariolf Abele[1]
Angelika Franzke[1] until March 18, 2019
Dr. Dieter Kurz
Eva-Maria Menzel[1] from March 18, 2019

Mediation Committee
Dr. Dieter Kurz (Chairman)
Dr. Mathias Kammüller
Eva-Maria Menzel[1] until March 18, 2019
Manfred Wicht[1] until March 18, 2019
Roland Hamm from March 18, 2019
Andreas Kopf from March 18, 2019

[1] Employee representative
Status: September 2019

Corporate Governance

For ZEISS, acting lawfully and responsibly and managing the company in a transparent manner that is focused on its long-term success are fundamental principles of corporate policy.

With its corporate governance structure, ZEISS ensures that legal provisions, the constitution of the Carl Zeiss Foundation and the company's internal directives are observed in line with compliance stipulations.

The Code of Conduct is a core element of the compliance management system of the ZEISS Group. This summarizes the rudiments and principles of action that form the basis of responsible conduct. The Code of Conduct is applies to all employees and is published on the company's website.

Group Management Report

Group Management Report

THE ZEISS GROUP

Business activity

ZEISS is an internationally leading technology enterprise operating in the optics and optoelectronics industries. The ZEISS Group emerged from a workshop for precision mechanics and optics established by company founder Carl Zeiss in Jena (Thuringia) in 1846. Today, ZEISS is headquartered in Oberkochen (Baden-Württemberg).

ZEISS plays an active part in advancing leading-edge technology and advances the world of optics and other related fields with its solutions. The ZEISS Group develops, produces and sells semiconductor manufacturing equipment, measuring technology, microscopes, medical technology and eyeglass lenses, as well as camera and cine lenses, binoculars and planetarium technology. ZEISS comprises 4 segments: Semiconductor Manufacturing Technology, Industrial Quality & Research, Medical Technology and Consumer Markets.

Semiconductor Manufacturing Technology
With its product portfolio and globally leading know-how, the Semiconductor Manufacturing Technology segment covers a variety of key processes in the production of microchips. ZEISS develops and manufactures products using semiconductor manufacturing technology, including lithography optics, photomask systems and process control solutions, key technologies for the manufacture of extremely fine circuit path structures on silicon wafers – the material from which the microchips are made. The technologies from ZEISS enable further miniaturization of semiconductor structures, making microchips smaller, more powerful, energy-efficient and cost-effective. The electronic equipment with which they are equipped foster global progress in a variety of disciplines, including technology, electronics, communications, entertainment, mobility, energy and artificial intelligence. ZEISS is making a decisive contribution to shaping the age of microelectronics and our digital future.

Industrial Quality & Research
The products and solutions developed in the Industrial Quality & Research segment are focused on quality assurance in production, increasing productivity and visualizing and manipulating the tiniest of structures in the area of science and research. In the automotive industry, mechanical engineering and aircraft construction, and in the plastics industry and medical technology, for example, the range of coordinate measuring machines, optical and multisensory systems, software solutions, comprehensive service offerings and innovative technologies, such as 3D X-ray measurement in quality assurance, ensure perfect results. In the area of science and research, the segment also covers the entire spectrum of microscopy with light, ion, electron and X-ray microscopes. The products and solutions are used in the life sciences and materials research, as well as for education and in clinical practice.

Medical Technology
The Medical Technology segment develops, manufactures, markets and sells diagnostic and treatment systems, as well as implants and consumables in the field of ophthalmology. In addition, ZEISS offers visualization systems for microsurgery – for example, neuro/ENT surgery and dentistry. ZEISS aspires to improve the diagnosis and treatment of diseases by constantly enhancing its innovative products and applications. As a solutions provider, the company plays an active part in the increasing digitalization and systems integration in the health sector and creates the conditions needed for efficient processes and effective patient data management at its customers' sites. The segment's activities are pooled primarily in the listed entity Carl Zeiss Meditec AG, in which Carl Zeiss AG holds a 59.1% stake.

Consumer Markets
The Consumer Markets segment stands for excellence in vision care, photography, cinematography, nature observation and hunting optics. ZEISS develops, produces and sells solutions for the entire eyeglass value chain. Alongside ZEISS precision eyeglass lenses, this includes devices for eye examinations and vision testing, digital consultation and measurement applications, as well as comprehensive services for eye care professionals. ZEISS is one of the world's largest manufacturers of eyeglass lenses and offers a combined competence in eye and vision care that is unique the world over. With its camera and cine lenses, binoculars, spotting scopes and hunting optics, ZEISS offers discerning customers high-end products and applications for hobbies and professional needs.

Global presence

The ZEISS Group is represented in nearly 50 countries and has some 60 sales and service locations, more than 30 manufacturing sites and about 25 research and development centers around the globe.

Group structure

Carl Zeiss AG is the strategic management holding company that manages the ZEISS Group. It develops the ZEISS Group's corporate business activities and portfolio and provides central management and service functions. The sole owner of the company is the Carl Zeiss Foundation (Carl-Zeiss-Stiftung).

Group strategy

The ZEISS mission statement is: "As the pioneer of science in optics, we continue to challenge the limits of our imagination. With our passion for excellence, we create value for our customers and inspire the world in new ways." This statement encapsulates the ZEISS Group's fundamental objectives: ZEISS aims to leverage its customer focus to consolidate and expand its position as a global technology leader.

ZEISS has a broad and balanced business portfolio focusing on attractive future-oriented markets of optics, precision mechanics and optoelectronics. The objective of portfolio management is the sustainable business success of the ZEISS Group – this requires a systematic strategy geared to continuously enhancing value added.

The ZEISS Agenda 2020 clearly defines the strategic direction for the development of the ZEISS Group. In addition, it pools the key elements of the portfolio strategy and the individual segments. The 4 cornerstones of the ZEISS Agenda 2020 – Customer, Competitive, Digital and Team – summarize what is necessary to successfully implement the strategy. The goal is to focus even more sharply on customers, to pay more consistent attention to competitiveness and to fully benefit from the possibilities of digitalization and the potential of the global TEAM ZEISS.

To achieve its objectives, ZEISS relies on the commitment and expertise of its employees, its innovative strength, its culture of innovation and its strong brand. Moreover, the ZEISS Group is constantly working on increasing its international business activities.

Corporate management

The ZEISS Group is managed using financial and non-financial key indicators. These are summarized in a balanced scorecard. For ZEISS, revenue growth and EBIT are the most important financial indicators. Other financial indicators are Economic Value Added (EVA®) and Free Cash Flow (FCF). Important non-financial indicators are customer and employee satisfaction, innovation excellence and process quality. In addition, there is a clear focus on sustainable further development of the leadership and corporate culture.

REPORT ON ECONOMIC POSITION

Macroeconomic and segment-specific environment

Macroeconomic environment

Global economic growth weakened significantly in the reporting period. Market growth of the industrial nations in fiscal year 2018/2019 was weaker than originally anticipated. The US shored up growth while the EU economy slowed considerably. The rapidly developing economies in Asia continued to drive the global economy, albeit at a slackening pace in the region. Growth impetus from China was also weaker. Economic growth in Latin America softened considerably.

Segment-specific environment

Semiconductor Manufacturing Technology

The market environment of the Semiconductor Manufacturing Technology segment was shaped by growing uncertainty and risks in the reporting year. Demand for electronics, microchips and semiconductor manufacturing equipment weakened. Storage overcapacity caused growth in the semiconductor market and thus also in the semiconductor manufacturing market to slow. Chip manufacturers exercised caution and postponed investments. Since the 2 prior years were extremely strong, this development can be seen as a normalization of the semiconductor market at its long-term level. Thanks to its technology leadership in lithography optics and its breakthrough in Extreme Ultra Violet (EUV) lithography in fiscal year 2018/19, ZEISS was not hit as hard by this lull in business overall.

Industrial Quality & Research

The market in the area of industrial quality assurance cooled off a little in fiscal year 2018/19. Reluctance to invest was felt in the traditional automotive and the associated supplier industries in particular, while demand from the aerospace and medical technology customer segments remained stable. Investments in alternative drive technologies were also on the up. Global research spending was more or less unchanged year on year. Particularly positive impetus stemmed from central research institutions (Core Facilities).

Medical Technology

The market for medical equipment and accessories again saw stable growth. Growth drivers included medical advances as well as megatrends such as demographic development as a result of increasing life expectancy and population growth. Growing per capita income is increasing demand for basic medical care in the rapidly developing economies. Solutions that increase the efficiency of diagnosis and treatment, improve the effectiveness of patient treatments and reduce the costs for the healthcare system are becoming more crucial in the face of rising health costs and patient numbers. A particular focus is on the intelligent use of diagnosis and treatment data. In addition, the increasing regulatory requirements, and their variance from one region to another, are a growing challenge in the context of product development and licensing.

Consumer Markets

Global market growth in the vision care market remains stable. The main growth drivers are increased purchasing power in emerging economies, the global rise in demand for vision care from an aging population and developments such as the significant increase in short-sightedness (myopia), as well as benchmark-setting innovations for eye care professionals and consumers. However, the global market for eyeglass lenses continues to be characterized by fierce price pressure and ongoing consolidation activities among competitors. The market for cine lenses developed positively in fiscal year 2018/19, thanks in particular to the trend toward full-format cameras, while the market for camera lenses remained challenging and fiercely contested. The specialty markets for hunting optics and nature observation grew slightly.

Overall statement on the economic situation of the Group as of fiscal year-end

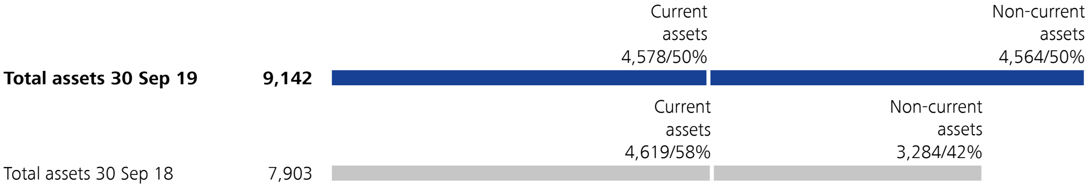
The ZEISS Group closed fiscal year 2018/19 with a new revenue record of €6,428m (prior year: €5,817m) and a return on EBIT of over 17%.

The revenue growth of around €6b with an EBIT margin of around 13% forecast in the prior year was thus exceeded.

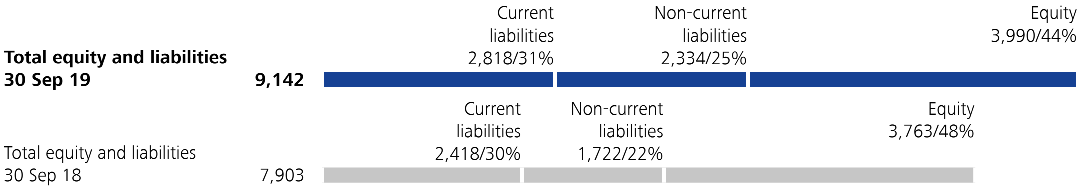
Net assets

Total assets increased by €1,239m in the reporting period to €9,142m (prior year: €7,903m). With regard to assets, this resulted mainly from the increase in intangible assets and property, plant and equipment as well as the change in inventories. The increase in equity and the higher pension obligations and financial liabilities were the main factors affecting the liabilities side of the statement of financial position.

Structure of the statement of financial position – assets in € m/as a % of total assets



Structure of the statement of financial position – equity and liabilities in € m/as a % of total equity and liabilities



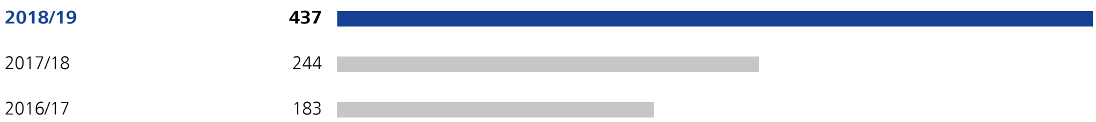
Intangible assets

Intangible assets of €1,663m (prior year: €881m) mainly contain goodwill of €1,294m (prior year: €665m). The increase is attributable to the first-time consolidation of GOM GmbH, Braunschweig, and Carl Zeiss Meditec Cataract Technology, Inc. (formerly IanTECH, Inc.), Reno (USA). The impairment tests performed in the reporting period did not give rise to the need to recognize any impairment losses on goodwill.

Property, plant and equipment

In fiscal year 2018/19, ZEISS invested a total of €437m in property, plant and equipment (prior year: €244m), mainly in modernization measures relating to production plants and in furniture and fixtures. Depreciation in the reporting period amounted to €234m (prior year: €164m). The change in property, plant and equipment contains right-of-use assets of €192m recognized for the first time due to the first-time application of IFRS 16 *Leases*.

Capital expenditures on property, plant and equipment in € m



Other non-current assets

Other non-current assets amounted to €489m (prior year: €667m) and mainly pertained to securities and fixed-term deposits, loans as well as assets for securing flextime credits via a contractual trust arrangement (CTA).

Working capital

The change in inventories and current trade receivables is consistent with the increase in business volume compared to the prior year. Inventories came to €1,622m as of the reporting date (prior year: €1,391m). Trade receivables increased by 6% to €1,263m.

Other current assets amounted to €1,004m (prior year: €1,277m). The change mainly resulted from time deposits with a short-term investment horizon, which were lower than in the prior year.

Trade payables came to €448m as of the reporting date (prior year: €403m).

Current provisions came to €296m (prior year: €266m) and essentially comprise provisions for sales-related obligations and provisions for income taxes.

The increase in other current liabilities by €280m to €1,795m (prior year: €1,515m) includes the change in sales-related and personnel-related obligations.

Increase in equity

Equity amounted to €3,990m as of the reporting date (prior year: €3,763m). The consolidated profit of €748m generated in the reporting period increased equity. Countereffects resulted from the remeasurement of defined benefit plans, which reduced equity by €393m in connection with the IFRS interest rate of 1.00% (prior year: 1.90%) used by ZEISS in Germany, and from the dividends paid out of €175m.

The equity ratio was less than the prior year at 43.6% (prior year: 47.6%) due to the increase in total assets.

Pension obligations
The financing of the pension obligations in Germany is structured for the most part in the form of a contractual trust arrangement (CTA). Capital to cover pension obligations toward employees is transferred to a dedicated trust, thus clearly separating the funds for operations from those for the pension obligations. This has increased the transparency and international comparability of the Group's financial reporting. The legally independent trust invests the assets transferred to it on the basis of an appropriate long-term investment strategy. The pension obligations of the corresponding entities remain unchanged.

The CTA assets in Germany, which are separated from operating funds, increased in the reporting period to €1,464m (prior year: €1,309m). This increase mainly results from transfers to the CTA of €140m. Benefit obligations in Germany increased on account of the interest rate under IFRS, which decreased year on year to 1.00% (prior year: 1.90%). For reasons relating to the cut-off date, this resulted in a funded status of the pension obligations of 67% (prior year: 80%).

The Group also has pension obligations toward employees of foreign subsidiaries.

In accordance with IAS 19, the pension obligations reported in the statement of financial position match the actual obligations and therefore correspond to the present value of benefit obligations after deducting the fair value of plan assets as of the reporting date. Provisions for pensions are reported at an amount of €1,570m (prior year: €1,144m) in the consolidated statement of financial position. This is equivalent to 17% of total assets (prior year: 14%).

Financial liabilities
The financial liabilities of €767m (prior year: €451m) primarily contain promissory notes and liabilities from dividend and purchase price obligations, and lease liabilities. The increase is attributable to lease liabilities recognized for the first time as a result of the initial application of IFRS 16 *Leases* and purchase price obligations in connection with acquisitions made during the fiscal year.

Profit participation
To enable employees to share in ZEISS's successful performance, employees in Germany received a bonus of up to a gross amount of €2,850 for fiscal year 2018/19. Employees at the majority of entities outside Germany also participated in the profit for fiscal year 2018/19 on the basis of the respective country-specific regulations.

Financial position

Sound liquidity base to implement long-term growth strategy
The financial position was mainly shaped by payments for the acquisition of shares in companies and for purchases of property, plant and equipment and the good consolidated profit in the reporting year. Furthermore, allocations were made to plan assets in Germany and abroad.

The cash outflows from investing activities were covered in full by the cash inflows from operating activities.

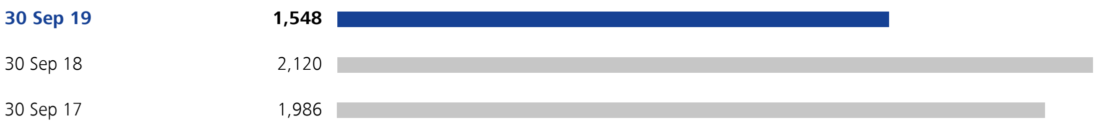
Cash flows from operating activities were primarily determined by the profit for the year and improved by 34% to €770m in the reporting year (prior year: €576m). In addition, there were allocations to plan assets in Germany and abroad of €148m.

Cash flows from investing activities came to minus €635m in the reporting period (prior year: minus €334m). Payments for capital expenditures on intangible assets and property, plant and equipment increased by 47% from €277m to €406m in fiscal year 2018/19. The acquisition of shares in companies for €730m contrasts with net cash inflow of financial assets of €483m.

Cash flows from financing activities came to minus €234m in fiscal year 2018/19 (prior year: minus €89m) and contain changes in the newly recognized lease liabilities pursuant to IFRS 16 *Leases*. Dividends of €164m (prior year: €90m) were paid out in the reporting year.

Cash and cash equivalents[1] came to €1,740m as of the reporting date (prior year: €2,327m). These contrast with loans payable of €192m (prior year: €207m). Net liquidity[2] thus decreased to €1,548m (prior year: €2,120m) despite positive cash flows from operating activities due to the cash paid for acquisitions and dividends, among other things.

Net liquidity in € m



The financial position offers a good base on which to realize the long-term growth strategy.

In addition, the ZEISS Group has access to a revolving credit facility with a total volume of €500m that was concluded between Carl Zeiss AG and a syndicate of banks in fiscal year 2013/14 to finance its business operations. Under an amendment agreement dated 2 August 2019, it was refinanced before maturing with an unchanged credit facility of €500m and a new term of a further 5 years. The revolving credit facility serves as a strategic liquidity reserve for the ZEISS Group, of which €9.4m was drawn in the reporting period to fund activities in other countries.

Goals and principles of financial management

ZEISS has a global financial management system that incorporates all subsidiaries and is coordinated centrally at Group level. The primary objective is to secure and effectively manage the liquidity of the ZEISS Group. In addition, ZEISS strives to continuously improve its financial strength and minimize financial risks. Investments are generally made in securities from issuers with good credit ratings. ZEISS is mainly funded through the operations of its segments, with which the financial activities and strategic orientation are aligned. The ZEISS Group has sufficient cash and cash equivalents and lines of credit to finance its operational and strategic objectives.

Results of operations

The income statement has been prepared using the cost of sales method that is widely used internationally.

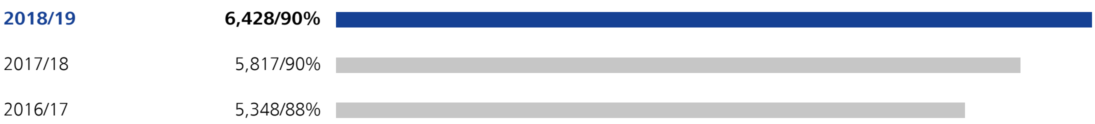
The results of operations are characterized by an increase in revenue in all segments and regions as well as a markedly higher EBIT margin of 17% (prior year: 13%). Currency effects had a slightly positive impact on the results of operations of the ZEISS Group in the reporting period.

[1] Cash and cash equivalents plus securities and fixed-term deposits
[2] Cash and cash equivalents less loans payable

Revenue growth in a challenging market environment

In the reporting period, the ZEISS Group's revenue increased by 11% from €5,817m in the prior year to €6,428m, with the share of international revenue of 90% remaining unchanged at the very high level seen in prior years. The revenue development forecast in the prior year was exceeded.

Revenue in € m/international share as a %



The ZEISS Group's incoming orders increased by 9% (adjusted for currency effects: 8%) in the reporting period to €6,575m (prior year: €6,046m). Incoming orders in the instrument segments increased by a total of 10% (adjusted for currency effects: 9%). The Semiconductor Manufacturing Technology segment recorded an increase in incoming orders of 5% (adjusted for currency effects: 5%) compared to the prior year.

Consolidated revenue by segment

Revenue by segment	**2018/19**	2017/18	Change compared to prior year as a %	
	€ m	€ m		Adjusted for currency effects
Semiconductor Manufacturing Technology	1,634	1,531	7	7
Industrial Quality & Research	1,742	1,549	12	11
Medical Technology	1,760	1,546	14	12
Consumer Markets	1,211	1,106	9	8
Other	81	85	-5	-5
ZEISS Group	**6,428**	**5,817**	**11**	**9**

Semiconductor Manufacturing Technology

The Semiconductor Manufacturing Technology segment generated revenue of €1,634m. That is equivalent to an increase of 7% (adjusted for currency effects: 7%) compared to the prior year (€1,531m).

In fiscal year 2018/19, the Semiconductor Manufacturing Technology segment benefited from the introduction of EUV technology in semiconductor mass production. Major semiconductor manufacturers are already successfully using EUV lithography for commercial purposes. This resulted in stable to rising demand for EUV optical systems. With a solid level of revenue in mass production with Deep Ultra Violet (DUV) lithography systems, the Semiconductor Manufacturing Technology segment posted another revenue high.

While the reluctance of chip manufacturers to invest, in particular for DUV lithography systems, slowed the momentum of growth in the reporting year, the segment's DUV revenue bucked the trend and fell only marginally short of the prior-year level. The introduction of EUV lithography was unaffected by the market lull and compensated for the weaker demand in DUV and optics modules business. Demand for EUV is more strongly technology-led.

A major focus of the business activities of the segment and its strategic partner ASML is the extremely challenging development and ramp-up of the next generation of EUV lithography. This future-oriented technology, which ZEISS began manufacturing in fiscal year 2018/19, should enable the semiconductor industry to produce even more powerful microchips at a lower cost over the next decade.

In the segment’s other business with components and modules for lithography lasers orders were on a par with the prior year. However, inspection optics felt the effects of the subdued level of investment by chip manufacturers. The Semiconductor Mask Solutions strategic business unit notched up record levels of revenue and earnings with the sale of photomask systems. Solutions used in the metrology and repair of photomasks were especially sought after. The segment’s process control solutions for applications in the manufacture of semiconductors opened up a new market and made a contribution to the positive development of the segment with a year-on-year increase in incoming orders and revenue.

As of 30 September 2019, the segment had 3,979 employees worldwide (prior year: 3,438).

Industrial Quality & Research

In fiscal year 2018/19, the segment increased its revenue by 12% (adjusted for currency effects: 11%) from €1,549m in the prior year to €1,742m.

Demand for products in the Industrial Quality & Research segment developed positively during the reporting period. Revenue was up in the area of industrial quality assurance on the back of the acquisition of GOM GmbH, Braunschweig. Software and services were major drivers of growth. In addition, product innovations across the entire portfolio provided buying incentives in spite of a generally gloomy economy. In terms of regions, APAC and EMEA including Germany made particularly positive contributions to the business development.

Business with microscopy systems for research and science grew substantially year on year in the reporting period due to the introduction of new light and X-ray microscopic solutions, among other things. The Research Microscopy Solutions strategic business unit posted significant revenue growth in North America and APAC in particular. Business performance in the European markets was stable. Demand for services grew across all regions and, as in prior years, growth was particularly strong in the APAC region. The service business increasingly succeeded in using the installed base that has grown steadily over the past years for profitable service business. The continued expansion of its service presence and in particular the aftersales business with upgrades, accessories and software was a major growth driver.

As of 30 September 2019, the segment had 7,417 employees worldwide (prior year: 6,773).

Medical Technology

The Medical Technology segment closed the fiscal year with a revenue increase of 14% (adjusted for currency effects: 12%). Revenue rose to €1,760m (prior year: €1,546m). Both strategic business units, Opthalmic Devices and Microsurgery, and all regions contributing to the positive trend. In the Ophthalmic Devices strategic business unit, a positive development was posted primarily by the refractive laser systems. The business unit also benefited from robust demand for surgical opthalmology. The APAC region achieved the highest rate of revenue growth. China made another significant contribution in the APAC region, attributable in particular to the positive development of business with products for ophthalmic surgery. Revenue in Japan also developed positively. Sound growth in Germany and in other European core markets made positive contributions to the EMEA region. The trend in the Americas region was also positive, with the US in particular able to boost growth substantially at year-end.

As of 30 September 2019, the segment had 5,254 employees worldwide (prior year: 4,889). Due to different bases of consolidation, the figures for the Medical Technology segment deviate from those published for Carl Zeiss Meditec AG.

Consumer Markets

In fiscal year 2018/19, the Consumer Markets segment increased its revenue by 9% (adjusted for currency effects: 8%) from €1,106m in the prior year to €1,211m.

In all regions, growth in the Vision Care strategic business unit was generated in particular with ZEISS precision eyeglass lenses and product innovations that are developed specifically to facilitate good eyesight in the modern world and that pick up on megatrends such as healthcare and digitalization. Its clear positioning as a partner for its customers aided new customer acquisition. The EMEA region reported a significant increase in revenue. Business also developed positively in the rapidly developing economies, in particular in Asia, as well as in the large markets in Central Europe. The USA, as the largest market for vision care, continued to be a challenge, mainly as a result of intense competition among independent eye care professionals and increasing market entry barriers. Business in the strategic Consumer Products business unit was characterized by fierce competition in all areas and high price pressure in some. Against this backdrop, the business unit's workflows and the organizational structures were simplified and the activities aligned even more closely to the needs of customers and their expectations. In this context, necessary reorganization measures were also carried out to optimize the cost structure.

As of 30 September 2019, the segment had 10,760 employees worldwide (prior year: 10,544).

Consolidated revenue by region

Revenue by region and cooperation partners	**2018/19**	2017/18	Change compared to prior year as a %	
	€ m	€ m		Adjusted for currency effects
EMEA	1,881	1,718	9	10
» thereof Germany	626	596	5	5
Americas	1,347	1,263	7	2
APAC	1,716	1,407	22	20
Cooperation partners	1,484	1,429	4	4
ZEISS Group	**6,428**	**5,817**	**11**	**9**

In the economic region of Europe/Middle East/Africa (EMEA), ZEISS reported an increase in revenue in the reporting period of 9% (adjusted for currency effects: 10%) to €1,881m (prior year: €1,718m), with revenue in Germany increasing by 5% to €626m (prior year: €596m).

Revenue in the Americas region came to €1,347m, which is 7% higher (adjusted for currency effects: 2% higher) than in the prior year (€1,263m).

Revenue in the Asia-Pacific region (APAC) increased by 22% compared to the prior year (adjusted for currency effects: 20%) to €1,716m (prior year: €1,407m). China continued its dynamic growth trajectory in the reporting period, while Japan, South Korea, India and Southeast Asia boasted double-digit growth.

Direct business with supra-regional cooperation partners increased by 4% to €1,484m in fiscal year 2018/19 (prior year: €1,429m), due largely to capacity expansions in the semiconductor industry, in particular in the area of EUV lithography.

Functional costs

Cost of sales increased by €67 m in comparison to the prior year and came to €2,927m (prior year: €2,860m). Gross profit improved by €544m from €2,957m to €3,501m in the reporting year. This development is attributable to a more favorable business and product mix compared to the prior year and positive effects in connection with the settlement of the legal dispute between NIKON, ASML and ZEISS. The gross margin improved to 54% (prior year: 51%).

Sales and marketing expenses in fiscal year 2018/19 amounted to €1,338m (prior year: €1,213m) and were on a par with the prior year at 21% of revenue. The change mainly relates to the instrument business and is attributable to the ZEISS Group's growth strategy. General administrative expenses stood at €397m (prior year: €325m) accounting as in the prior year for 6% of revenue.

Research and development expenses recognized in the consolidated income statement came to €705m in the reporting year (prior year: €642m).

	2018/19	2017/18
	€ m	€ m
Research and development expenses according to consolidated income statement	705	642
Government and third-party grants	126	110
Capitalized development costs (IAS 38)	23	14
Research and development expenses before subsidies and IAS 38	**854**	**766**

Research and development expenses before subsidies and capitalized development costs (IAS 38) totaled €854m (prior year: €766m). Representing 13% of revenue and at the prior-year level, this figure testifies to the ZEISS Group's continued strong focus on innovation.

Development of earnings

Earnings before interest, taxes, depreciation and amortization (EBITDA) amounted to €1,382m in the reporting year (prior year: €1,014m).

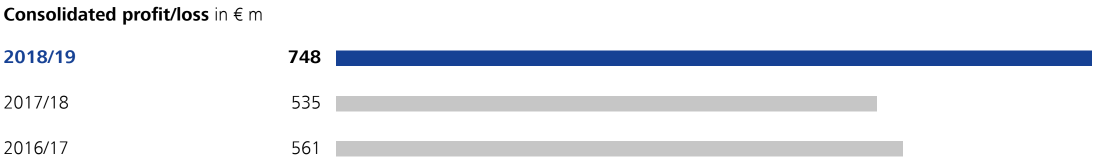
Earnings before interest and taxes (EBIT) of €1,063m (prior year: €772m) with an EBIT margin of 17% (prior year: 13%) were generated in the reporting period. The EBIT margin projected in the prior year was exceeded.

	2018/19	2017/18	2016/17
	€ m	€ m	€ m
EBITDA	1,382	1,014	985
» EBITDA margin as a %	21	17	18
EBIT	1,063	772	770
» EBIT margin as a %	17	13	14

The financial result deteriorated by €39m compared to the prior year to minus €92m (prior year: minus €53m). The interest result changed by €20m to minus €45m (prior year: minus €25m), which is mainly attributable to the interest incurred on purchase price liabilities from acquisitions and the first-time application of IFRS 16 *Leases*. The other financial result detoriated by €19m to minus €47m (prior year: minus €28m). This is essentially attributable to measurement effects in connection with foreign currency hedges and the development of the exchange rates important to ZEISS in the reporting year.

The tax expense for fiscal year 2018/19 totaled €224m (prior year: €184m), which resulted in a group tax rate of 23% (prior year: 26%). The tax rate is mainly the result of the deferred tax assets recognized through profit or loss on statement of financial position items and on unused tax losses in the reporting year, reducing the tax expense accordingly.

ZEISS thus achieved a consolidated profit of €748m (prior year: €535m).



Economic value added generated

ZEISS measures the value added generated using the Economic Value Added (EVA®) indicator. This is the internal measure of the company's success. In fiscal year 2018/19, EVA® amounted to €574m (prior year: €413m). ZEISS therefore once again achieved considerable value added and continued the positive development of prior years. EVA® is calculated as the operating profit after taxes less cost of capital. The internal interest rate used to determine weighted average of cost of capital ranges between 6.5% and 10%, depending on the business involved.

NON-FINANCIAL KEY PERFORMANCE INDICATORS

Responsibility

Responsibility has a long tradition at ZEISS. As a company operating under the umbrella of the Carl Zeiss Foundation (Carl-Zeiss-Stiftung), ZEISS has been implementing the stipulations anchored in the Foundation Statute for 130 years and constantly develops them further in the present context.

ZEISS informs stakeholders of its progress in the area of sustainability in a report based on the reporting standard of the Global Reporting Initiative (GRI) and on the sustainability pages at www.zeiss.com/corporate/int/about-ZEISS/responsibility. In addition to the sustainability report, a separate non-financial report as defined by Secs. 315b, 315c in conjunction with Secs. 289c to 289e German Commercial Code (HGB) will also be available for the ZEISS Group from 31 January 2020.

Employees

Highly qualified, dedicated and motivated employees are the foundation for the long-term success of the ZEISS Group. The Group endeavors to conserve this foundation going forward. The total headcount of the ZEISS Group increased as of 30 September 2019 by 1,951 worldwide to 31,260 (prior year: 29,309). The largest increase in the number of employees was seen in Germany, where it rose by 1,243 to 13,310 (prior year: 12,067).

Diversity is a prerequisite for innovation, which is why it is actively supported and strengthened by ZEISS. Around 57% (prior year: 59%) of the ZEISS workforce – equivalent to 17,950 employees (prior year: 17,242) – work outside Germany. ZEISS is thus well positioned internationally.

The ZEISS Group's research and development departments have 3,641 employees (prior year: 3,248 employees), or 12% of the workforce, working on new solutions and technologies for the optics and optoelectronics industries and digital business models.

Education and training is a high priority at ZEISS. As of the reporting date, the ZEISS Group had 454 apprentices and trainees as well as students of universities offering dual degree programs (prior year: 395). The further training of employees and leadership development are further areas of focus for ZEISS. Employees can select from a large number of internal and external courses that are available through the global digital learning platform. In addition, ZEISS supports off-the-job training and personnel development measures.

ZEISS promotes occupational health and safety through comprehensive measures. In addition to the advice and support from occupational health and safety professionals and company doctors, corporate healthcare management at ZEISS contributes significantly to creating a modern and sustainable working environment. The focus is on the health, motivation and performance of employees. The central fields of activity are workplace design, healthcare competence development among employees and accident prevention.

Societal and social engagement

Millions of people around the world are threatened by preventable blindness or cannot access medical care. ZEISS sets new standards in the healthcare sector with solutions in Vision Care and Medical Technology and thus promotes medical progress. The aim is to contribute to an improved quality of life for patients in all areas in which ZEISS is active. ZEISS has been cooperating for years with non-profit organizations and given donations in money and in kind to ensure that medical care is available to all people in developing and emerging countries and that their medical professionals receive training.

In addition, ZEISS assumes responsibility and an active role in society. The ZEISS Group supports educational measures and scientific projects and institutions as well as selected social and cultural initiatives and facilities at its locations. Professional associations involved in nature conservation activities and educational programs for children and adults are also supported.

Dividends distributed to the Carl Zeiss Foundation (Carl-Zeiss-Stiftung) are used within the framework of its aims to promote, in particular scientific, engineering and mathematical studies in research and teaching.

Environment

ZEISS attaches great importance to a sustainable and economical use of resources as well as protecting the climate and environment. Sustainability is a key consideration – from the development and manufacture of its products, through to packaging, shipment and disposal. To this end, the ZEISS Group has defined corresponding requirements for its units and for its suppliers. Furthermore, in 2018, ZEISS set clear targets for reducing energy consumption, carbon emissions, water consumption and waste. In October 2019, the Executive Board of Carl Zeiss AG resolved further concrete steps toward embedding sustainability even more strongly in the ZEISS Group's strategic business units. ZEISS is staying true to its identity as a foundation company by taking concrete measures to reduce carbon emissions and promote climate protection. ZEISS aims to transition to carbon neutral energy by 2022. The sustainability report details progress in these areas as well as the planned climate protection measures.

In fiscal year 2018/19, ZEISS took part in CDP (formally Carbon Disclosure Project) for the second time and made its answers in the questionnaire on climate change public. Furthermore, all the major ZEISS manufacturing sites worldwide work in accordance with the international environmental management standard ISO 14001.

ZEISS launched its initiatives for the efficient handling of energy several years ago. The ZEISS Group sites in the European Union have been certified to the energy management standard ISO 50001.

Products and value chain

For over 170 years, ZEISS has been synonymous with innovation. Its specific ownership structure ensures the scope required to enable investments in new developments, products and solutions in the long term. These are the basis for the sustained business success of ZEISS. ZEISS cooperates with global networks of renowned universities, research institutes, customers and experts in developing new technologies and solutions.

Optical technologies are key technologies of the future. ZEISS therefore invests in innovations and secures its innovative advantage by means of patents. As of the reporting date, ZEISS held about 9,400 patents worldwide (prior year: 8,600) and applied for new patents for approx. 500 inventions (prior year: approx. 450).

ZEISS aspires to rigorously implement all product safety laws relating to product use and disposal.

Suppliers and business partners around the world make an important contribution to the ZEISS products and services and thus also have an important influence on the sustainability performance of ZEISS. The company demands that its new and existing principal suppliers recognize the Code of Conduct of the Responsible Business Alliance (RBA) and implement ongoing measures to meet these requirements. The internationally recognized Code of Conduct is based on the UN guiding principles for business and human rights and was derived from international labor and environmental standards. ZEISS uses a risk-based approach to monitor suppliers and implement sustainability standards.

Integrity and compliance at ZEISS

The company’s pledge to act with integrity is based on the historically shaped values of the foundation company ZEISS. Compliance with the law, fair competition and fairness toward business partners and employees are indispensable elements of a successful business. This requires an open and respectful corporate culture, which together with an effective compliance management system at ZEISS ensures that errors are detected, identified and rectified.

It is vital to the reputation of the company that business partners, customers, public authorities, the general public and competitors all have confidence in the responsible, law-abiding and ethical conduct of all ZEISS employees. Therefore, ZEISS approved a Code of Conduct in 2007 that is valid throughout the world. It specifies and explains the general rules of behavior for various areas of the business activities. The Code of Conduct was last updated in 2018. It details topics such as data protection, product safety, environmental protection and rules against restriction of competition and to combat corruption, and acts as a binding guideline for business conduct for all employees of the ZEISS Group. There are additional corporate policies for the topics addressed in the Code of Conduct. With the ZEISS Compliance Management System, the ZEISS Group has also implemented framework conditions to ensure compliance with the law and regulatory requirements as well as adherence to internal corporate guidelines.

ZEISS recognizes the relevance of data and data protection and takes the protection of personal data very seriously. A globally consistent structure is therefore in place to protect data effectively.

RISK AND OPPORTUNITY REPORT

Groups with global operations face a large number of entrepreneurial risks and opportunities that can have a sustained impact on planned business performance. The assessment of opportunities and risks and the conscientious handling of entrepreneurial uncertainty are an important part of corporate governance and sustainable operating policies at ZEISS.

Risk management system

The central risk management system at ZEISS stipulates uniform rules and processes to detect, assess and manage risks at an early stage. The key objective is to exploit business opportunities and manage the associated risks.

Risk management coordinators apply the central policies and procedures. The management of the segments and strategic business units detects, manages and reports on operating and strategic risks. Overall responsibility lies with the Group’s Executive Board, which regularly assesses possible scenarios, risks and opportunities and their management at group level. While the Executive Board examines the appropriateness of the risk management system, the Supervisory Board’s Audit Committee monitors the effectiveness of the risk management system.

Internal control system

The internal control system (ICS) of ZEISS is based on the COSO Enterprise Risk Management Model (COSO ERM model). It integrates organizational, process-related and technical measures to ensure proper operating activities and correct reporting. This enterprise risk management system of the ZEISS Group covers strategic and operational risks, i.e. it does not merely monitor financial risks. For central processes, there are defined key risks and defined control mechanisms, which are evaluated with regard to their effectiveness.

The Group’s Executive Board ensures that an adequate and effective internal control system is in place and that it is continuously enhanced. The Supervisory Board’s Audit Committee monitors the effectiveness of the internal audit function, risk management and the internal control system as well as the financial reporting process.

Strategic and operational risks

ZEISS systematically analyzes and evaluates risks. Special emphasis is placed on potential economic effects and probability of occurrence. Risks are thus quantified and classified, and the risk-bearing capacity is identified. Due to the broad portfolio and the ZEISS Group’s global presence, the strategic and operational risks are highly diversified.

General risks and opportunities

ZEISS regularly checks for risks and opportunities that can arise from changes in markets and within the supplier and customer environment, including consolidation within the industry, new technologies and competitors, and lower entry barriers for alternative vendors. Risks and opportunities arising from general demands made of companies by society and opportunities due to megatrends, such as digitalization, sustainability and demographic change are also assessed at regular intervals. In addition, ZEISS analyzes economic, legal and political developments or economic sanctions in the economic regions relevant for the ZEISS Group and evaluates possible scenarios. Its international orientation, sustainable operating policies and balanced portfolio help spread the risk. However, the introduction of trade barriers, customs duties and increasing economic uncertainties could make conditions for ZEISS more difficult.

Innovation risks and opportunities
The success and reputation of ZEISS are heavily dependent on the development of innovative products and solutions. New technical possibilities, trends and changing customer requirements can give rise to abrupt technology shifts and make new business models necessary. Current findings from science and research accelerate this development. In order to take advantage of these opportunities at an early stage and to minimize the probability of occurrence and the economic impact of the risk, ZEISS cooperates with customers and research institutes, engages in development partnerships including participations and makes targeted technology acquisitions. ZEISS seeks and engages in the targeted promotion of opportunities to extend the existing portfolio with market-shaping innovations. ZEISS Ventures, a business unit of the ZEISS Group, is invested in the development and commercialization of new business models. The ZEISS Digital Innovations Partners unit supports the segments in exploiting the opportunities offered by digitalization for customers and partners. The economic impact and probability of occurrence inherent in digitalization risks are therefore both low.

Personnel risks and opportunities
Demographic change and the evolving requirements of digitalization, as well as the differing training and qualifications standards around the globe, are creating new challenges when it comes to filling job vacancies. Increasing demands on potential employers are becoming noticeable. These give rise to moderate economic risks. ZEISS counters these by positioning itself as a target-group-oriented employer as well as with a global recruitment strategy and a consistent recruitment process, which leads to a low probability of occurrence. The ZEISS Group offers a broad spectrum of opportunities for development to attract professionals and managers and to retain them in the long term. In addition, a variety of location-based initiatives and social benefits are offered, including health promotion programs and models for reconciling work and family life.

Risks and opportunities in procurement and production
ZEISS ensures compliance with national and international standards, laws and regulations by means of an integrated management system that addresses the issues of quality, environmental protection, occupational health and safety, and energy management. The regulatory requirements for commodities and materials, the growing uncertainty in international trade, the growing complexity of purchased parts and the limited number of suppliers (single source) for some technologies give rise to higher costs and a moderate procurement risk. In addition, rising energy prices and the potential pricing of emission allowances as well as capacity bottlenecks in the supply chain in some industries are also driving up costs. To mitigate this risk, ZEISS continuously adapts its strategic supplier pool as part of product group management. ZEISS conducts systematic audits for these suppliers that also include social standards and environmental aspects. The risk of a hard Brexit may have an effect on business in the UK as well as on the financial market, customs duties and taxes. While a task force is in place to address these risks, effects on the supply chain cannot be ruled out. The effects for ZEISS are, however, assessed as being low and the probability of occurrence as moderate. Responsible Business Alliance compliance is also regularly monitored in the supply chain. ZEISS is continuously working to stabilize supply chains, reduce the dependence on individual suppliers and review partners' business practices in order to minimize the associated economic repercussions and impact on the company's reputation. ZEISS systematically leverages opportunities that arise from bundling procurement activities. ZEISS is seeking to become carbon neutral with regard to its consumption of energy such as electricity and gas. This will have an effect on procurement prices. ZEISS is also working on options to reduce its carbon emissions, for example, in the area of business travel. The economic impact and probability of occurrence of this risk are therefore low.

Risks and opportunities of information technology
ZEISS constantly examines and utilizes the opportunities of digitalization in order to offer customers additional and enhanced services. At the same time, dependence on the information technology (IT) infrastructure is constantly increasing. The ZEISS Group therefore permanently optimizes its existing IT systems and structures

to ensure greater protection, security and availability. Some ZEISS IT systems are operated by external partners. For these service providers, high technical and legal standards regarding the hardware and software deployed, process monitoring and data security have been defined and contractually agreed. ZEISS continuously monitors the implementation of and compliance with these standards. The probability of IT risks occurring is estimated to be low. However, the economic impact, for example from cyber attacks, can be considerable.

Risks and opportunities from acquisitions and investments

Acquisitions or investments offer ZEISS the opportunity to better meet customers' needs. Assessments are made as to how to enlarge the competencies and technology portfolio or increase access to the regional markets. They also help to open up markets faster and accelerate processes. ZEISS systematically checks the associated risks and opportunities. Due diligence reviews aimed at assessing the business development that can be expected and reducing the economic risks and the likelihood of their occurrence are a key element prior to closing transactions. The economic impact and probability of occurrence are therefore low.

The acquisitions in the fiscal year give rise to the following opportunities:

By acquiring Carl Zeiss Meditec Cataract Technology Inc. (formerly IanTECH, Inc.), with its registered office in Reno (USA), ZEISS will strengthen its technological position and product range in cataract surgery in the coming years. This acquisition will create the potential to further enhance the quality of treatment outcomes and the efficiency of workflows in cataract surgery.

By acquiring GOM GmbH, Braunschweig, a leading supplier of hardware and software for automated 3D coordinate measuring technology, ZEISS is enhancing its industrial quality control range with leading surface measurement and digitalization solutions. Merging the product portfolio of ZEISS with the optical 3D measuring technology of GOM will offer new opportunities and access to markets.

Goodwill totaling €1,294m from acquisitions is shown in the consolidated statement of financial position. This goodwill is subject to regular impairment tests. It cannot be ruled out that impairment losses on goodwill may need to be recognized on account of changes in economic conditions, business models or technologies.

Legal risks, patents and intellectual property

ZEISS safeguards its technologies and products through a comprehensive intellectual property rights strategy. If patent and brand rights are infringed by third parties, ZEISS takes legal steps in order to counter the associated high economic risk. The probability of such cases occurring is low.

When developing new products and technologies, ZEISS systematically checks whether the rights of a third party could be affected, develops non-protected solutions if necessary, and acquires the requisite licenses and rights, or seeks other solutions by legal contract. Due to the complexity of possible industrial rights and the increased activity of institutional patent assertion entities, there is a moderate risk of litigation with a moderate economic risk. Appropriate provision is made in the statement of financial position for any claims arising from unclear patent situations.

There is no pending litigation that poses any risk to the continued existence of ZEISS at present. The legal dispute between NIKON, ASML and ZEISS that has been ongoing since 2017 was resolved in a settlement agreement in the reporting period. The settlement reached includes a definitive licensing arrangement to cover past activities and creates legal certainty going forward. The provisions recognized in prior years were adequate.

Financial risks and opportunities
The liquidity risk of the ZEISS Group represents the risk that Carl Zeiss AG or subsidiaries may not be able to meet their financial obligations (for example, to repay financial liabilities or make interest payments). ZEISS has sufficient liquidity reserves in the form of cash and lines of credit. An appropriate and conservative investment strategy is in place with a focus on security and short-term availability. In addition, ZEISS ensures that the investments are broadly diversified.

Credit risk stems from an adverse development in the economic conditions of the company's borrowers or counterparties. On the one hand, this gives rise to the risk of default, in full or in part, on contractually agreed payments or performance and, on the other, potentially a need to recognize credit-risk-related impairment losses on financial instruments. Risks of default are limited by choosing counterparties with excellent credit ratings given by external rating agencies. Concentration risks are limited and managed by conducting transactions with several different banks.

On account of its global orientation, the ZEISS Group is exposed to financial market price risks in its operations and the financial results and cash flows reported. This includes currency and interest rate risks. The associated opportunities and risks of the ZEISS Group are managed centrally. ZEISS uses defined risk strategies to minimize risks resulting from changes in exchange rates, interest rates or the value of assets. The ZEISS Group exclusively uses derivative financial instruments to hedge interest rates and currency risks. For this purpose, it enters into standard currency options and forward exchange contracts. These cover the underlying goods and services transactions of Group entities and non-derivative financial transactions (hedged transactions).

Overall, the ZEISS Group's financial risks are classified as low with a low probability of occurrence.

In the context of pension obligations, risks could also arise from the further increasing life expectancy of the beneficiaries, from general interest rate developments and from the obligation to regularly adjust the amount of the pensions paid. As capital market rates drop, the required pension fund allocations increase. The existing pension agreements could give rise to risks with regard to equity which could in turn restrict scope for strategic action.

ZEISS has transferred the funds to cover pension obligations toward active employees in Germany to a contractual trust arrangement (CTA). The investment strategy is based on long-term commitments.

In principle, further financial risks and risks relating to the statement of financial position can arise from changes to accounting standards.

Market risks and opportunities
The broad and balanced ZEISS business portfolio helps spread risk. The search for opportunities to expand the portfolio horizontally or vertically results in further market opportunities and a broader risk diversification. The economic risk arising from the differing development of the segments is classified as moderate with a moderate probability of occurrence. In order to further reduce both the probability of occurrence and the economic risk, ZEISS runs programs designed to increase competitiveness in certain areas.

The macroeconomic uncertainties and volatility of the semiconductor sector entails risks and opportunities for the Semiconductor Manufacturing Technology segment, which ZEISS must adapt to in a flexible manner. In particular, the market launch of EUV lithography in the reporting year offers considerable growth opportunities while at the same time presenting high inherent technological risks for the segment. ZEISS therefore collaborates closely with its strategic partner ASML and other development partners in order to jointly steer the next generation of this future-oriented technology to success as well.

The Industrial Quality & Research segment is exposed to risks arising from the dependence on the capital goods industry, particularly the automotive and the associated supplier industries, their technology roadmap (electromobility) and willingness to invest. This is also true of the international research expenditure in the academic sector. These risks are reduced by continuously developing new application areas, through an innovative product portfolio and by stringently expanding the segment's business with customer services. The segment is therefore improving its product portfolio to tap new market and customer potential, also by integrating digital solutions. Opportunities still arise for the segment from increasingly networked production processes (Smart Production), from the unrelenting pursuit of increased productivity as well as from its positioning as a one-stop provider and the expansion of local value chains in the key economic regions.

In the Medical Technology segment, political and regulatory decisions can have a long-term effect on the reimbursement of costs for medical treatment and thus on willingness to invest in new treatment systems. Cuts in public budgets can have similar consequences. Refractive surgery is an elective procedure that patients pay for themselves. Demand therefore hinges on the general economic development. Furthermore, new product launches can be delayed or even rejected due to changes in product approval requirements. In principle, patients may be harmed due to malfunctions or misuse of medical devices or may be injured due to improper handling of personal data. This can result in substantial litigation costs and can cause long-term damage to the company’s reputation. The steadily growing world population and rising life expectancy, which is likely to lead to increased demand for medical technology, are giving rise to growth opportunities for the Medical Technology segment. The rapidly developing economies offer further potential for growth due to the growing demand for basic medical care.

The Consumer Markets segment is exposed to risks arising from fundamental changes in the market, ongoing consolidation in the industry and the horizontal and vertical integration of large competitors. Other risks include persistent pressure on prices, the market entry of new providers previously unknown in the sector, as well as competitors who use alternative sales channels or deploy new technologies to establish their own production capacity. Substitution effects in the Consumer Products segment can also lead to risks from a change in consumer behavior. This could give rise to challenges at manufacturing sites. The licensing business in the market for cine and camera lenses depends on the attractiveness of the ZEISS brand for partners of the segment. ZEISS counters this risk by means of a consistent brand strategy. Opportunities will still arise with regard to freeform technology in vision care and, in connection with this, innovative precision eyeglass lenses, the optimization of the value chain, new industry and technology trends, as well as new digital business and service models.

Overall statement on the risks faced by the company

When this report was prepared, no risks were discernible that could jeopardize the ability of the ZEISS Group to continue as a going concern. There are no significant differences for the overall assessment compared to the prior year. The Executive Board believes that the ZEISS Group has a solid foundation for further development and uses a systematic strategy and planning process to provide the resources required in order to leverage the opportunities.

REPORT ON EXPECTED DEVELOPMENTS

Future conditions of business development

When these consolidated financial statements for 2018/19 were issued for publication, the economists from the IMF expected a slight recovery in global economic growth with differences between the various regions for the coming year. In the industrial nations, the current growth rate will continue at a comparatively low level, although the pace of growth in the US will slow slightly. Growth in the rapidly developing economies in Asia is forecast to continue at the current level, while economic growth in China will again be slightly in decline. Growth impetus from Latin America is projected to pick up again in the coming year.

The risks for the global economy and economic growth have not lessened, however, as demonstrated by the downward revisions to growth forecasts and falling interest rates. As protectionist and politically motivated activities persist, the risk of a trade war that would further exacerbate global trade cannot be ruled out. Credit-financed investments can provide growth impetus, but increasing indebtedness also harbors risks. Uncertainty in respect of Brexit, a further escalation of the political conflicts in the Middle East and West Asia, and with North Korea as well as ongoing structural problems could negatively impact on investment activity of industry and the public sector.

Expected development of the markets and industries relevant for ZEISS

Semiconductor Manufacturing Technology
ZEISS predicts that global digitalization and technologies such as 5G connectivity, autonomous driving, artificial intelligence and more powerful data centers will stimulate growth, which will result in an unchanged positive market outlook medium term. Market researchers are predicting growth in global plant capacity in the semiconductor industry in the long term and high demand for lithography systems as a result. In the short term, however, the economic situation will become more difficult. In fiscal year 2019/20, ZEISS expects revenue in the global semiconductor industry and the semiconductor manufacturing market to decrease. DUV business should develop in a straight-line trajectory, however. EUV lithography is enjoying a high level of market acceptance. The Semiconductor Manufacturing Technology segment therefore strives to increase the output of EUV systems in fiscal year 2019/20.

Industrial Quality & Research
ZEISS expects business development in Industrial Quality & Research in a competitive environment that is developing at different speeds to be largely stable. A moderate improvement in investment behavior is expected for the US, while there are more positive indicators for business in EMEA and also in Asia, albeit to a lesser extent than in the prior fiscal year. ZEISS also anticipates further growth through forward-looking projects, for example in additive manufacturing and electromobility. Positive impetus is expected for the industrial application of microscopes, while public subsidies for research are likely to increase moderately.

Medical Technology
Medical devices and medical equipment will remain an attractive business field in the healthcare sector. ZEISS expects that growth drivers in the market for the Medical Technology segment, such as demographic trends and population growth as well as rising demand from the rapidly developing economies, will continue to exist. They will be supplemented by new technologies and applications, particularly in the area of minimally invasive surgery, which will contribute to the growth of the industry. From the customer's perspective, a better cost-benefit balance for medical technology products as well as increasing digitalization and systems integration are playing a key role in day-to-day work in doctors' offices and hospitals. Growth in the low to mid single-digit percentage range is forecast for the medical technology industry as a whole for the coming years.

Consumer Markets

For business in the Consumer Markets segment, ZEISS expects that consumer behavior and therefore global growth will remain stable. Major drivers of the development of the vision care market are demographic trends, rising income in the rapidly developing economies, increasing health awareness and growing demand for individualized branded eyeglass lenses. ZEISS expects the advancing digitalization in lens fitting and production, logistics, marketing, sales and customer service to result in major changes. ZEISS expects Consumer Products to face tougher competition. Sales of camera lenses are under pressure around the world due to consumers switching to smartphone photography. With the size of the market for cine lenses set to remain constant, increased competitive pressure is expected due to the entry of new competitors from Asia.

Overall statement on anticipated development

Based on the clear strategic focus and solid positioning of the segments in their respective markets, which ZEISS established and expanded in the past, mainly through its innovative strength, ZEISS plans a slight increase in revenue with a stable EBIT margin of around 13% for fiscal year 2019/20. In light of the global economic development forecasts available when these consolidated financial statements for 2018/19 were issued for publication that indicate an economic downturn, business climate cooldown and increase in economic volatility in the markets, the Executive Board of Carl Zeiss AG considers the goals planned for fiscal year 2019/20 challenging.

Consolidated Financial Statements

Consolidated Income Statement
for the period from 1 October 2018 to 30 September 2019

	Note	2018/19	2017/18
		€ k	€ k
Revenue	7	**6,428,055**	**5,817,170**
Cost of sales		2,926,860	2,860,582
Gross profit		**3,501,195**	**2,956,588**
» Sales and marketing expenses		1,337,569	1,213,342
» General administrative expenses		397,237	325,058
» Research and development expenses		705,248	641,839
» Other income	8	6,606	4,441
» Other expenses	9	4,413	8,691
Earnings before interest and taxes (EBIT)		**1,063,334**	**772,099**
» Interest income	10	11,283	9,805
» Interest expenses	10	55,889	35,159
» Other financial result	10	-47,203	-28,194
Financial result		**-91,809**	**-53,548**
Earnings before taxes (EBT)		**971,525**	**718,551**
» Income taxes	11	223,990	183,522
Consolidated profit/loss		**747,535**	**535,029**
» thereof profit/loss attributable to non-controlling interests		171,849	146,967
» thereof profit/loss attributable to the stockholder of the parent company		575,686	388,062

Consolidated Statement of Comprehensive Income
for the period from 1 October 2018 to 30 September 2019

	Note	2018/19	2017/18
		€ k	€ k
Consolidated profit/loss		**747,535**	**535,029**
Other comprehensive income that may be reclassified to consolidated profit/loss in subsequent periods:			
» Currency translation differences		61,891	-165
» Gains/losses from financial assets, at fair value through other comprehensive income		1,383	-2,457
» Deferred income tax		-399	708
Other comprehensive income that will not be reclassified to consolidated profit/loss in subsequent periods:			
» Remeasurement of defined benefit plans		-555,638	-72,209
» Deferred income tax		162,636	31,584
Other comprehensive income (after taxes)		**-330,127**	**-42,539**
Total comprehensive income		**417,408**	**492,490**
» thereof profit/loss attributable to non-controlling interests		143,000	141,992
» thereof profit/loss attributable to the stockholder of the parent company		274,408	350,498

Consolidated Statement of Financial Position
as of 30 September 2019

Assets	Note	30 Sep 19	30 Sep 18
		€ k	€ k
Non-current assets			
» Intangible assets	12	1,663,095	881,246
» Property, plant and equipment	13	1,466,429	1,028,083
» Trade and other receivables	23	46,271	40,989
» Other non-current financial assets	14	477,580	662,663
» Other non-current non-financial assets	15	11,213	4,696
» Deferred taxes	11	899,661	666,087
		4,564,249	**3,283,764**
Current assets			
» Inventories	16	1,622,356	1,390,845
» Trade and other receivables	23	1,263,398	1,194,583
» Other current financial assets	14	853,373	1,148,429
» Tax refund claims		38,292	27,524
» Other current non-financial assets	15	150,774	128,348
» Cash and cash equivalents	17	650,033	729,299
		4,578,226	**4,619,028**
		9,142,475	**7,902,792**

Equity and liabilities	Note	30 Sep 19	30 Sep 18
		€ k	€ k
Equity	18		
» Issued capital		120,000	120,000
» Capital reserves		52,770	52,770
» Retained earnings		4,087,107	3,581,358
» Other reserves		-975,610	-674,332
» Non-controlling interests		705,708	682,886
		3,989,975	**3,762,682**
Non-current liabilities			
» Provisions for pensions and similar obligations	19	1,569,813	1,143,660
» Other non-current provisions	20	121,423	244,642
» Non-current financial liabilities	21	519,750	246,135
» Other non-current liabilities	22	31,847	33,012
» Deferred taxes	11	91,572	54,644
		2,334,405	**1,722,093**
Current liabilities			
» Current provisions	20	296,302	266,371
» Current financial liabilities	21	247,623	204,870
» Trade payables	23	447,727	402,947
» Current income tax payables		31,474	28,925
» Other current liabilities	22	1,794,969	1,514,904
		2,818,095	**2,418,017**
		9,142,475	**7,902,792**

Consolidated Statement of Changes in Equity
for fiscal year 2018/19[1]

	Issued capital	Capital reserves	Retained earnings	Other reserves: from currency translation	Other reserves: from the remeasurement of defined benefit plans	Other reserves: from financial assets, at fair value through other comprehensive income	Equity attributable to the stockholder of the parent company	Non-controlling interests	Consolidated equity
	€ k	€ k	€ k	€ k	€ k	€ k	€ k	€ k	€ k
1 October 2017	**120,000**	**52,770**	**3,242,146**	**2,106**	**-638,915**	**41**	**2,778,148**	**651,028**	**3,429,176**
» Consolidated profit/loss	0	0	388,062	0	0	0	388,062	146,967	535,029
» Other comprehensive income	0	0	0	-410	-35,405	-1,749	-37,564	-4,975	-42,539
Total comprehensive income	**0**	**0**	**388,062**	**-410**	**-35,405**	**-1,749**	**350,498**	**141,992**	**492,490**
Dividends	0	0	-48,850	0	0	0	-48,850	-110,460	-159,310
Changes in basis of consolidation	0	0	0	0	0	0	0	326	326
Other changes	0	0	0	0	0	0	0	0	0
30 September 2018	**120,000**	**52,770**	**3,581,358**	**1,696**	**-674,320**	**-1,708**	**3,079,796**	**682,886**	**3,762,682**
Transition effect from first-time application of new IFRSs	**0**	**0**	**-18,443**	**0**	**0**	**0**	**-18,443**	**-141**	**-18,584**
1 October 2018	**120,000**	**52,770**	**3,562,915**	**1,696**	**-674,320**	**-1,708**	**3,061,353**	**682,745**	**3,744,098**
» Consolidated profit/loss	0	0	575,686	0	0	0	575,686	171,849	747,535
» Other comprehensive income	0	0	0	54,713	-356,975	984	-301,278	-28,849	-330,127
Total comprehensive income	**0**	**0**	**575,686**	**54,713**	**-356,975**	**984**	**274,408**	**143,000**	**417,408**
Dividends	0	0	-54,328	0	0	0	-54,328	-120,411	-174,739
Changes in basis of consolidation	0	0	-1,382	0	0	0	-1,382	0	-1,382
Other changes	0	0	4,216	0	0	0	4,216	374	4,590
30 September 2019	**120,000**	**52,770**	**4,087,107**	**56,409**	**-1,031,295**	**-724**	**3,284,267**	**705,708**	**3,989,975**

[1] For more information on the changes in equity, please refer to notes 6 and 18 of the notes to the consolidated financial statements.

Consolidated Statement of Cash Flows
for the period from 1 October 2018 to 30 September 2019

	2018/19	2017/18
	€ k	€ k
Consolidated profit/loss	747,535	535,029
Amortization, depreciation and impairment net of reversals of impairment losses	319,146	242,344
Changes in provisions for pensions and similar obligations	12,139	13,004
Amounts allocated to the contractual trust arrangement and other plan assets outside Germany	-147,606	-127,516
Changes in other provisions	-75,505	23,497
Gain/loss from the disposal of intangible assets and property, plant and equipment	-154	177
Gain/loss from the disposal of current securities	-267	-154
Changes in inventories	-171,388	-102,993
Changes in trade receivables	-26,574	-93,181
Changes in deferred taxes	-74,661	-17,453
Changes in other assets	-17,332	6,374
Changes in trade payables	29,896	18,953
Changes in current accruals	141,498	105,600
Changes in advances received	47,334	-35,809
Changes in other liabilities	-13,974	8,009
Cash flows from operating activities	**770,087**	**575,881**
Proceeds from the disposal of intangible assets and property, plant and equipment	19,118	24,005
Purchases of intangible assets and property, plant and equipment	-406,158	-276,674
Net cash outflow from investments in financial assets including fixed-term investments and securities maturing in >90 days	482,869	24,723
Acquisition of subsidiaries, net of cash and cash equivalents received	-730,424	-106,210
Cash flows from investing activities	**-634,595**	**-334,156**
Dividend paid to Carl Zeiss Foundation (Carl-Zeiss-Stiftung)	-54,328	-48,850
Payments to non-controlling interests	-109,875	-40,753
Change in (financial) loans	-23,135	192
Change in lease liabilities	-46,680	0
Cash flows from financing activities	**-234,018**	**-89,411**
Changes in cash and cash equivalents	-98,526	152,314
Changes in cash and cash equivalents from exchange rate movements and changes in the basis of consolidation	19,260	14,949
Cash and cash equivalents as of 1 October	729,299	562,036
Cash and cash equivalents as of 30 September	**650,033**	**729,299**

Additional information on the statement of cash flows	2018/19	2017/18
	€ k	€ k
Payments of		
» Income taxes	264,098	258,952
» Interest	26,551	10,317
» Dividends	164,203	89,603
Proceeds from		
» Income taxes	25,492	5,689
» Interest	11,097	8,760
» Dividends	1,839	450

Notes to the Consolidated Financial Statements
for fiscal year 2018/19

BASIS OF PRESENTATION

1 General principles

Carl Zeiss AG is a non-listed stock corporation incorporated under German law and parent company of the ZEISS Group, headquartered at Carl-Zeiss-Strasse 22, 73447 Oberkochen (Germany), and has been entered in the commercial register of Ulm district court (HRB 501555). The Carl Zeiss Foundation (Carl-Zeiss-Stiftung), Heidenheim an der Brenz and Jena, is the sole stockholder of Carl Zeiss AG.

ZEISS is an internationally leading technology enterprise operating in the optics and optoelectronics industries. The ZEISS Group develops, produces and sells semiconductor manufacturing equipment, measuring technology, microscopes, medical technology, eyeglass lenses as well as camera and cine lenses, binoculars and planetarium technology. ZEISS comprises 4 segments: Semiconductor Manufacturing Technology, Industrial Quality & Research, Medical Technology and Consumer Markets.

Carl Zeiss AG exercises the option afforded by Sec. 315e (3) German Commercial Code (HGB) which, based on the member state option set out in the EU Regulation dated 19 July 2002, also allows companies not geared to the capital market to issue their consolidated financial statements for publication in accordance with International Financial Reporting Standards with exempting effect as defined by this regulation.

The accompanying consolidated financial statements of Carl Zeiss AG, comprising the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of financial position, the consolidated statement of changes in equity, the consolidated statement of cash flows and the notes to the consolidated financial statements, have been prepared in accordance with International Financial Reporting Standards (IFRSs) and the interpretations of the IFRS Interpretations Committee, as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB. All pronouncements of the International Accounting Standards Board (IASB) whose adoption is mandatory have been considered.

The consolidated financial statements are presented in euros (€). Unless otherwise specified, all amounts are stated in thousands of euros (€ k) and rounded in line with common business practice.

In order to improve clarity and transparency, individual items have been combined in the consolidated statement of financial position and the consolidated income statement and broken down and explained separately in these notes.

The consolidated financial statements and group management report prepared as of 30 September 2019 were authorized for issue to the Supervisory Board by the Executive Board on 9 December 2019.

2 Basis of consolidation

Subsidiaries, associates, joint ventures and structured entities are included in the consolidated financial statements. Subsidiaries (including structured entities) are all entities that are controlled by the Group and are fully consolidated. Control exists when the Group can exercise power over the investee, is exposed to variable returns on its involvement with the investee and has the ability to use its power over the investee to affect the amount of those returns. Associates are entities over which the Group exercises significant influence and that are neither subsidiaries nor joint ventures. Subsidiaries, associates and joint ventures that are not material for either the Group or for the presentation of a true and fair view of the net assets, financial position and results of operations are generally carried at cost.

The consolidated financial statements contain 36 (prior year: 34) fully consolidated German entities (including Carl Zeiss AG) and 112 (prior year: 108) fully consolidated entities in other countries. The entities are generally included in the consolidated financial statements from the date on which control is obtained.

A special fund is included in the consolidated financial statements as a structured entity because the fund activities are prescribed by the investment strategy defined by Carl Zeiss Financial Services GmbH. Carl Zeiss Financial Services GmbH is solely entitled to the earnings generated by the fund.

The entities included in consolidation and shareholdings are all contained in the list of shareholdings in accordance with Sec. 313 (2) HGB.

The number of fully consolidated entities changed as follows in the reporting period:

	Germany	Other countries	**Total**
1 October 2018	34	108	142
Disposals in the reporting period	1	2	3
Additions in the reporting period	3	6	9
30 September 2019	**36**	**112**	**148**

Disposals from the basis of consolidation
The following entities were no longer included in the basis of consolidation in the reporting period:
» Carl Zeiss 3D Metrology Services GmbH Stuttgart, Ostfildern
(merged with Carl Zeiss QEC GmbH, Peine, as of 1 October 2018)
» Carl Zeiss India Pte. Ltd., Singapore (Singapore)
(liquidated on 28 February 2019)
» ANASPEC (Pty.) Ltd., Randburg (South Africa)
(liquidated on 26 June 2019)
The disposals from the basis of consolidation did not have any significant impact on the net assets, financial position and results of operations of the ZEISS Group.

Additions to the basis of consolidation
The following entities were included in the consolidated financial statements for the first time:
» Carl Zeiss IQR GmbH (formerly Carl Zeiss Dritte Vorratsgesellschaft mbH), Oberkochen
(from 1 January 2019)
» Carl Zeiss QEC GmbH, Peine (formerly Carl Zeiss 3D Metrology Services GmbH München, Garching)
(from 1 October 2018)
» GOM GmbH, Braunschweig
(from 9 April 2019)
» Carl Zeiss Meditec (Guangzhou) Ltd., Guangzhou (China)
(from 1 September 2019)
» Carl Zeiss Philippines Pte. Ltd., Taguig (Philippines)
(from 1 October 2018)
» Carl Zeiss d.o.o., Ljubljana (Slovenia)
(from 1 October 2018)
» Carl Zeiss Meditec Cataract Technology Inc. (formerly IanTECH, Inc.), Reno (USA)
(from 14 December 2018)
» Carl Zeiss SMT, Inc., Peabody (USA)
(from 1 October 2018)
» Carl Zeiss Vietnam Co., Ltd., Ho Chi Minh City (Vietnam)
(from 17 December 2018)

The following entities were acquired in fiscal year 2018/19:

GOM GmbH, Braunschweig
Under an agreement dated 9 April 2019, Carl Zeiss IQR GmbH, Oberkochen, acquired 100% of the shares in GOM GmbH, Braunschweig ("GOM"), and thereby obtained control.

GOM develops, produces and distributes software, machines and systems for industrial and automated 3D coordinate measuring technology and 3D testing. By acquiring the shares in a leading supplier of hardware and software for automated 3D coordinate measuring technology, Carl ZEISS expands its industrial measuring technology and quality control portfolio in the Industrial Quality & Research segment. GOM's offers leading solutions for surface digitalization which will allow ZEISS to build its strength in this area. The aim of the move is to join forces to further advance this position as a leader in technology, especially in the area of optical digitization systems. By combining existing products and solutions and collaborating on new developments, the acquisition will enable new markets to be served and developed. Merging the product portfolio of ZEISS with the optical 3D measuring technology of GOM will offer new opportunities and access to markets in the Industrial Quality & Research segment. This acquisition will allow ZEISS to underscore its commitment to become a leader in surface measurement and digitalization. Customers and users alike will benefit from the strengths of GOM and ZEISS in the area of software and hardware.

The purchase price allocation in accordance with IFRS 3 was performed in the reporting period. The purchase price for 100% of the shares is €668.3m. The identified goodwill of €466.1m contains inseparable intangible assets, in particular from expected synergy effects from the integration of the entity into the existing business of the Industrial Quality & Research segment. The identified goodwill is not expected to be tax deductible.

GOM contributed €69.0m to revenue and €11.6m to consolidated profit in the period between the acquisition date and the reporting date.

Carl Zeiss Meditec Cataract Technology Inc. (formerly IanTECH, Inc.), Reno (USA)
On 22 October 2018, Carl Zeiss Meditec Inc., Dublin (USA), signed an agreement to acquire 100% of the shares in IanTECH, Inc., Reno (USA). The acquisition took place on 14 December 2018. With effect on the same day, the company was renamed Carl Zeiss Meditec Cataract Technology Inc. ("CZM Cataract").

CZM Cataract specializes in technical solutions for microinvasive cataract surgery. The acquisition serves to strengthen the technology position and cataract surgery product portfolio of the Medical Technology segment.

The purchase price allocation in accordance with IFRS 3 was performed in the reporting period. The purchase price comprises a fixed component (including an escrow amount) of €101.0m and discounted performance-based components totaling €98.8m. The performance-based components reward the achievement of defined revenue and development targets. If all the targets are met, a maximum amount of €233m will be payable for these components. If there are delays or targets are not met, the amount payable is reduced in increments down to a minimum of zero. The goodwill identified from the acquisition mainly relates to expected synergies from the integration of the entity into the existing Ophthalmic Devices business. The goodwill is not expected to be tax deductible.

CZM Cataract contributed €0.7m to revenue and minus €5.9m to consolidated profit in the period between the acquisition date and the reporting date.

Acquired assets and liabilities at fair value

The provisional fair values of the identifiable assets and liabilities as of the acquisition date are as follows:

	GOM	CZM Cataract	Total
	€ k	€ k	€ k
Identifiable intangible assets	129,506	60,329	189,835
Property, plant and equipment	43,889	292	44,181
Non-current financial assets	16,181	0	16,181
Inventories	29,712	544	30,256
Trade receivables	31,801	229	32,030
Other assets	4,440	95	4,535
Cash and cash equivalents	35,414	4,632	40,046
Total assets	**290,943**	**66,121**	**357,064**
Financial liabilities	9,411	143	9,554
Trade payables	7,164	460	7,624
Other liabilities	31,350	466	31,816
Deferred tax liabilities	40,795	6,433	47,228
Total liabilities	**88,720**	**7,502**	**96,222**
Identifiable net assets	**202,223**	**58,619**	**260,842**
Goodwill from the acquisition	466,052	141,187	607,239
Purchase consideration transferred	**668,275**	**199,806**	**868,081**
Cash received	35,414	4,632	40,046
Cash outflow due to acquisition	-668,275	-100,965	-769,240
Actual cash outflow from acquisition	**-632,861**	**-96,333**	**-729,194**

Pro forma presentation of acquisitions

ZEISS does not present pro forma consolidated revenue and pro forma consolidated profit as though the acquisitions had taken place on the first day of the fiscal year since no precise figures can be calculated owing to the companies' different fiscal years, seasonal business and different accounting policies.

Changes to shares in subsidiaries currently under control

In fiscal year 2018/19, the following changes were recorded to shares in subsidiaries currently under control:

In the reporting year, Carl Zeiss Industrielle Messtechnik GmbH, Oberkochen, acquired the remaining 10% of Carl Zeiss Fixture Systems GmbH, Tholey, for €0.3m, increasing its share in capital from 90% to 100%.

3 Consolidation principles

The consolidated financial statements are based on the financial statements of the subsidiaries included in the Group as of 30 September 2019, which have been prepared according to uniform accounting policies.

Business combinations are accounted for using the purchase method pursuant to IFRS 3 *Business Combinations*.

The identifiable assets acquired and liabilities assumed in a business combination are measured at their fair values as of the acquisition date regardless of the extent of any non-controlling interests. Non-controlling interests are measured either at the fair value (full goodwill method) or the proportionate share of fair value of the assets acquired and liabilities assumed (partial goodwill method).

The cost of the interests acquired is offset against the Group's proportionate share in the subsidiary's net assets measured at fair value. Any acquisition-related costs incurred are expensed. Any excess of cost over the Group's interest in the net fair value remaining after offsetting is recognized as goodwill under intangible assets. Any excess of the Group's interest in the net fair value over cost is recognized through profit or loss. For business combinations prior to 14 May 2002, the option set forth in IFRS 1.18 in conjunction with IFRS 1.C1 was exercised by including the previous GAAP accounting for these business combinations in the consolidated financial statements in accordance with IFRSs. Transactions under common control are accounted for by rolling forward the carrying amount. Changes to the investment ratio in a subsidiary which do not lead to a loss of control are treated as transactions between equity providers that do not affect income.

The profit or loss of the subsidiaries acquired in the reporting period is included in the consolidated income statement based on their group affiliation, i.e. from the date on which the Group obtains control.

A subsidiary is deconsolidated on the date on which Carl Zeiss AG loses control over the entity.

The shares in net assets that are attributable to non-controlling interests are reported under non-controlling interests within consolidated equity.

If reciprocal put and call options with the same terms and conditions are agreed in a business combination for the remaining non-controlling interests, an anticipated purchase of these shares is assumed. As such, no non-controlling interests are recognized. Instead, the conditional purchase price for these shares is reported as a financial liability at fair value.

Joint ventures as defined by IFRS 11 *Joint Arrangements* are accounted for using the equity method.

When using the equity method in accordance with IAS 28 *Investments in Associates and Joint Ventures*, the shares are initially recognized at cost in the statement of financial position and subsequently measured at amortized cost to reflect changes in the Group's share of the equity (net assets) after the acquisition date and impairment losses.

Intercompany receivables and liabilities between consolidated entities are netted.

Intercompany profits from intercompany trade are eliminated.

The income tax implications are considered in the course of consolidation by recognizing deferred taxes.

Internal revenue and other intercompany income are offset against the corresponding expenses in the consolidated income statement.

4 Summarized financial information of material subsidiaries with non-controlling interests

The summarized financial information presented in the following corresponds to the financial information in the published consolidated financial statements of Carl Zeiss Meditec AG, Jena: The share of non-controlling interests in Carl Zeiss Meditec AG amounts to 40.9%.

	2018/19	2017/18
	€ k	€ k
Revenue	1,459,321	1,280,860
Consolidated profit/loss	160,579	126,230
Other comprehensive income	-5,048	1,071
Total comprehensive income	155,531	127,301

	30 Sep 19	30 Sep 18
	€ k	€ k
Non-current assets	717,800	410,996
Current assets	1,304,329	1,251,056
Non-current liabilities	265,573	67,238
Current liabilities	339,600	280,180
Equity	1,416,956	1,314,634

	2018/19	2017/18
	€ k	€ k
Cash flows from operating activities	219,634	187,207
Cash flows from investing activities	-145,846	-28,874
Cash flows from financing activities	-58,637	-157,237
Changes in cash and cash equivalents from exchange rate movements and changes in the basis of consolidation	810	1,657
Changes in cash and cash equivalents	15,961	2,753

	2018/19	2017/18
	€ k	€ k
Consolidated profit/loss attributable to non-controlling interests	65,677	51,628
Total comprehensive income attributable to non-controlling interests	63,612	52,066
Dividends paid to non-controlling interests	20,101	20,101
Equity attributable to non-controlling interests	579,535	537,685

The partnership between the Semiconductor Manufacturing Technology segment and ASML Holding N.V., Veldhoven (Netherlands), was intensified further in fiscal year 2016/17. In connection with this, ASML acquired 24.9% of the shares in Carl Zeiss SMT Holding GmbH & Co. KG and thus to participate financially in the business of the Semiconductor Manufacturing Technology segment.

The summarized financial information (IFRS) for Carl Zeiss SMT Holding GmbH & Co. KG and Carl Zeiss SMT GmbH breaks down as follows:

	Carl Zeiss SMT Holding GmbH & Co. KG	Carl Zeiss SMT GmbH
	30 Sep 19	**30 Sep 19**
	€ k	€ k
Non-current assets	44,622	431,531
Current assets	607,445	1,567,053
Non-current liabilities	1,589	257,393
Current liabilities	600,995	1,682,025
Equity	49,482	59,166
Other comprehensive income	-287	-92,291
Profit/loss for the year	498,767	44,794

5 Currency translation

The consolidated financial statements are presented in euros. In the annual financial statements of those entities included in consolidation, transactions in foreign currencies are translated at the relevant exchange rate prevailing on the date of the transaction. Monetary items in foreign currencies are revalued at the mean closing rate, with exchange rate gains and losses being recognized in the consolidated income statement under financial result.

Financial statements denominated in foreign currency of the consolidated subsidiaries are translated into euros on the basis of the functional currency concept pursuant to IAS 21 *The Effects of Changes in Foreign Exchange Rates*. All assets and liabilities are translated using average closing rates prevailing on the reporting date, whereas equity is translated at historical rates. The income and expense items from the income statement are translated using annual average rates. Any exchange differences arising are recognized through other comprehensive income within other reserves from currency translation.

The functional currency of two companies included in the consolidated financial statements is estimated as being hyperinflationary in accordance with IAS 29 *Financial Reporting in Hyperinflationary Economies*. However, the effects on the consolidated financial statements are immaterial.

The following key exchange rates for the consolidated financial statements as of 30 September 2019 and 2018 were used for currency translation:

		Closing rate		Average rate	
	€1 =	**30 Sep 19**	30 Sep 18	**2018/19**	2017/18
China	CNY	7.7784	7.9662	7.7566	7.7819
UK	GBP	0.8857	0.8873	0.8840	0.8847
Japan	JPY	117.5900	131.2300	124.1669	131.4525
USA	USD	1.0889	1.1576	1.1281	1.1907

6 Accounting policies

The financial statements of the entities included in the consolidated financial statements are prepared in accordance with the accounting policies of the ZEISS Group. Adjustments are made as necessary where the local GAAP financial statements of individual entities diverge from these policies. Where the reporting date of subsidiaries is different from the reporting date for the consolidated financial statements, interim financial statements are used.

New and revised financial reporting standards

The ZEISS Group has applied all accounting standards adopted by the EU whose application is mandatory from 1 October 2018. ZEISS has also applied IFRS 16 *Leases* early. For all standards and interpretations applied for the first time, there were no significant changes in the accounting policies other than for the standards described below.

In fiscal year 2018/19, there were changes in the accounting policies from the first-time application of IFRS 9 *Financial Instruments,* IFRS 15 *Revenue from Contracts with Customers* and IFRS 16 *Leases*. Cumulative effects from the first-time application of IFRS 9 *Financial Instruments* were recognized in equity. The prior-year figures have not been restated. The adoption of IFRS 15 *Revenue from Contracts with Customers* did not give rise to any significant effects on the presentation of the net assets, financial position and results of operations.

IFRS 9 *Financial Instruments* replaces IAS 39 *Financial Instruments: Recognition and Measurement*. In terms of classification, IFRS 9 now defines 3 instead of 4 measurement categories for financial assets. Categorization is based on the company's business model on the one hand, and the characteristics of the contractual cash flows of the financial asset on the other hand. The classification of financial liabilities under IFRS 9 remains largely unchanged compared with the previous accounting regulations as defined by IAS 39. At the same time, IFRS 9 contains changes for calculating impairment losses on financial assets. Unlike IAS 39, under which impairment losses were only recognized for incurred losses, IFRS 9 requires expected credit losses to be recognized at initial recognition of the financial asset. This applies to financial assets measured at amortized cost as well as those measured at fair value through other comprehensive income. IFRS 9 provides for a general and simplified approach for calculating expected credit losses. Under the general approach, an entity recognizes expected credit losses for a 12-month period. If there is a significant increase in credit risk the expected credit loss must be determined for the entire lifetime of the asset. The new rules and regulations also result in additional quantitative and qualitative disclosures in the notes.

The following table shows the reconciliation of financial assets and liabilities from the measurement categories under IAS 39 to the measurement categories under IFRS 9:

	Amount recognized as of 30 Sep 2018		Amount recognized as of 1 Oct 2018	
Assets	Category pursuant to IAS 39	€ k	Category pursuant to IFRS 9	€ k
Trade and other receivables	LaR/n.a.	1,235,572	AC/n.a.	1,219,636
Other financial assets				
» Shares in affiliates	AfS	39,505	n.a.	39,505
» Investments	AfS	3,711	FVPL	3,711
» Loans	LaR	42,494	AC	39,622
» Securities	AfS	268,258	FVOCI	96,401
			AC	171,557
» Derivatives	FVtPL	5,430	FVPL	5,430
» Sundry financial assets	LaR	1,451,694	AC	1,448,960
Cash and cash equivalents	LaR	729,299	AC	729,299
Financial assets		**3,775,963**		**3,754,121**

	Amount recognized as of 30 Sep 2018		Amount recognized as of 1 Oct 2018	
Equity and liabilities	Category pursuant to IAS 39	€ k	Category pursuant to IFRS 9	€ k
Trade payables	FLAC	402,947	AC	402,947
Other financial liabilities				
» Liabilities to banks	FLAC	207,076	AC	207,076
» Loans	FLAC	5,052	AC	5,052
» Derivatives	FVtPL	19,069	FVPL	19,069
» Lease liabilities	n.a.	11,457	n.a.	11,457
» Sundry financial liabilities	FLAC	208,351	AC	208,351
Financial liabilities		**853,952**		**853,952**

LaR Loans and receivables
AfS Available for sale
FVtPL Measurement at fair value through profit or loss
FLAC Financial liabilities measured at amortized cost
AC Measurement at amortized cost
FVPL Measurement at fair value through profit or loss
FVOCI Measurement at fair value through other comprehensive income
n.a. Not applicable

The effects of the first-time application of the measurement categories pursuant to IFRS 9 on financial assets are presented in the following table:

	No measurement category pursuant to IFRS 9	AC (previously LaR)	FVOCI (previously AfS)	FVPL (previously FVtPL)
	€ k	€ k	€ k	€ k
30 Sep 2018 (IAS 39)	**0**	**3,459,059**	**311,474**	**5,430**
Reclassified from AfS to FVPL	0	0	-3,711	3,711
Reclassified from AfS to AC	0	171,857	-171,857	0
Reclassified from AfS to n.a.	39,505	0	-39,505	0
1 Oct 2018 (IFRS 9 before remeasurement)	**39,505**	**3,630,916**	**96,401**	**9,141**
Remeasurement	0	-21,842	0	0
1 Oct 2018 (IFRS 9)	**39,505**	**3,609,074**	**96,401**	**9,141**

The reconciliation of impairment losses pursuant to IAS 39 to impairment losses pursuant to IFRS 9 is presented in the following table:

	Category pursuant to IAS 39	Impairment loss as of 30 Sep 2018	Remeasurement	Category pursuant to IFRS 9	Impairment loss as of 1 Oct 2018
		€ k	€ k		€ k
Trade and other receivables	LaR	24,995	15,936	AC	40,931
Loans	LaR	67	2,872	AC	2,939
Securities	AfS	0	300	AC	300
Other financial assets	LaR	0	2,734	AC	2,734

As of the date of first-time application, deferred tax assets on temporary differences of €5.3m were recognized in other comprehensive income due to remeasurements under IFRS 9.

IFRS 15 *Revenue from Contracts with Customers* combines the former standards and interpretations on revenue recognition (IAS 11 and 18, IFRIC 13, 15 and 18 as well as SIC 31). The standard sets out an extensive framework for determining whether, in what amount, and at what point in time revenue is recognized. IFRS 15 provides for a uniform, five-step model for recognizing revenue that is generally applicable to all contracts with customers. Under the new standard, revenue is recognized when the customer obtains control of the goods or services and can benefit from them. Under IFRS 15, the items contract assets and contract liabilities will be introduced to the statement of financial position. Based on the relationship between the performance of the group and the customer's payment a contract asset or liability has to be recognized. The new rules and regulations also result in additional quantitative and qualitative disclosures in the notes.

The agreements and business models concerned were analyzed in a group-wide project. On the basis of this, the applicable accounting guidelines on revenue recognition in the ZEISS Group pursuant to IFRS 15 were developed and the relevant business processes adapted. Based on the analyses performed, there were no significant effects since the current approach for recognizing revenue was already largely in line with the new regulations of IFRS 15. It was therefore not necessary to reconcile an adjustment effect in the statement of changes in equity. The introduction of the new items resulted in a change in disclosure at ZEISS with contractual liabilities presented separately in other liabilities. The standard was applied for the first time in the ZEISS Group using the modified retrospective method.

The ZEISS Group applied IFRS 16 *Leases* early as of 1 October 2018 using the modified retrospective method. IFRS 16 requires lessees to recognize all leases in the form of a right-of-use asset and corresponding lease liability. The lease liability is measured at the present value of the outstanding lease payments. Extension, termination and purchase options were taken into account during initial measurement of the lease liability if their exercise is reasonably certain. The exemptions for low-value assets and short-term leases are applied.

Lease liabilities from previous operating leases of €192.0m were recognized in connection with the transition to IFRS 16 as of 1 October 2018. ZEISS exercised the option to account for right-of-use assets in the same amount in the relevant "property, plant and equipment" items. Leases with a remaining term of 1 year or less were treated as short term. Direct costs were not included in the calculation the right-of-use asset. Any subsequent knowledge and insight about extension and termination options was taken into account when determining the lease terms. No further review was carried out to determine whether contracts not classified as leases under the IAS 17 standard on leases meet the definition of a lease under IFRS 16.

In the statement of financial postition at the date of initial application an weighted average incremental boorowing rate of 3.5% was applied to measure the right of use asset and the lease liability.

The reconciliation of the minimum lease payments under operating leases as of 30 September 2018 to the lease liabilities recognized as of 1 October 2018 is as follows:

	1 October 2018
	€ k
Future minimum lease payments under operating leases as of 30 September 2018	**200,150**
Short-term leases with a term of up to 12 months	-10,119
Leases of low-value assets	-3,098
Reasonably certain extension and termination options	38,314
Leases entered into in fiscal year 2017/18 where the lease term commences in fiscal year 2018/19	-10,148
Other	-2,789
Gross lease liability	**212,310**
Discounting	-20,337
Lease liability after first-time application of IFRS 16 as of 1 October 2018	**191,972**

The other accounting policies used were the same as in the prior year.

The IASB has issued revised and amended standards which did not come into effect in the reporting period. The new or amended rules and regulations mentioned in the following table are not expected to have a significant effect. Except for IFRS 16 *Leases*, these new pronouncements have not been early adopted in the consolidated financial statements of Carl Zeiss AG.

The new or amended rules and regulations mentioned in the following table are not expected to have a significant effect.

Date of issue	Standard/interpretation	Amendment/new standard or interpretation	Effective date	Endorsed by the EU
7 June 2017	IFRIC 23 *Uncertainty over Income Tax Treatments*	Clarification on the accounting treatment of uncertainty relating to income taxes	Periods beginning on or after 1 January 2019	Yes
12 October 2017	IAS 28 *Investments in Associates and Joint Ventures*	Clarification on the application of IFRS 9 to long-term investments in associates and joint ventures not accounted for using the equity method	Periods beginning on or after 1 January 2019	Yes
12 October 2017	IFRS 9 *Financial Instruments*	Clarifications and amendments to financial assets with symmetric prepayment options and modifications of financial liabilities	Periods beginning on or after 1 January 2019	Yes
12 December 2017	Improvements to IFRSs (2015 to 2017)	Clarifications and amendments to IFRS 3 and 11 as well as IAS 12 and 23	Periods beginning on or after 1 January 2019	Yes
7 February 2018	IAS 19 *Employee Benefits*	Clarifications and amendments on effects of plan amendments, curtailments or settlements	Periods beginning on or after 1 January 2019	Yes
29 March 2018	Conceptual Framework	Revised definitions of an asset and liability and new guidance on measurement and derecognition, presentation and disclosure	Periods beginning on or after 1 January 2020	No
22 October 2018	IFRS 3 *Business Combinations*	Amendments to the determination of whether a business or a group of assets is acquired	Periods beginning on or after 1 January 2020	No
31 October 2018	IAS 1 *Presentation of Financial Statements* and IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*	Clarification and convergence of the definition of materiality in all IFRSs and the Conceptual Framework and an avoidance of the understandability of financial statements being reduced by obscuring material with immaterial information	Periods beginning on or after 1 January 2020	No
26 September 2019	IFRS 9 *Financial Instruments*, IAS 39 *Financial instruments* and IFRS 7 *Financial instruments: Disclosures*	Amendments regarding effects of the reform of the reference interest rates (IBOR reform) on certain hedge accounting requirements stemming from uncertainty about alternative interest rates and the introduction of such rates	Periods beginning on or after 1 January 2020	No
18 May 2017	IFRS 17 *Insurance Contracts*	Accounting for insurance contracts	Periods beginning on or after 1 January 2021	No

Use of estimates

The preparation of financial statements in accordance with IFRSs requires management to make estimates and assumptions. These can affect the measurement of assets and liabilities, the nature and scope of contingencies, and the reported amounts of income and expenses during the reporting period. The assumptions and estimates primarily relate to the following matters:

» The determination of uniform useful lives is subject to estimates by management.
» The measurement parameters for impairment testing, in particular regarding goodwill (see note 12 Intangible assets).
» The actuarial parameters on which the calculation of the defined benefit obligations is based (see note 19 Provisions for pensions and similar obligations).
» The recoverability of the future tax relief.
» The timing of recognizing intangible assets pursuant to IAS 38 *Intangible Assets*.
» Assessment of the expected probability of default when assessing trade receivables and other financial assets.
» The measurement of lease liabilities pursuant to IFRS 16 *Leases*. In determining the lease term, all facts and circumstances that create an economic incentive to exercise options to extend the lease or not exercise termination options are taken into account.

In addition, estimates are required when assessing the recoverability of inventories as well as recognizing and measuring provisions. Actual results may differ from these estimates. The estimates and assumptions are regularly reviewed based on past experience. Changes are recognized through profit or loss as and when better information is available.

Revenue recognition and other income
Revenue was generated from products, system solutions, technical and other services for biomedical research, the medical technology, the semiconductor, automotive and mechanical engineering industries, planetariums and high-end consumer articles such as eyeglass lenses, camera and cine lenses and binoculars.

ZEISS recognizes revenue when control over the distinct goods and services is transferred to the customer, i.e., as soon as the customer has the ability to direct the use of, and obtain substantially all of the remaining benefits from the goods or services transferred. The recognition of revenue requires a contractual agreement that creates legally enforceable rights and obligations. The amount of revenue recognized is the expected consideration to which ZEISS is contractually entitled. Where required, revenue is adjusted for variable price components such as cash discounts, price reductions, customer bonuses and rebates. These are mainly volume-based bonuses measured on the basis of estimated future purchase volumes.

Revenue from the sale of goods is recognized when control is transferred to the customer, which is normally when the goods are delivered. Revenue from services is recognized over the period in which the service is provided because the customer simultaneously receives and consumes the benefits. An output method is normally used to measure progress. When goods are sold, the customer pays on receiving the invoice after the goods are delivered. Advance payments may be requested from customers.

If a single contract with a customer comprises several performance obligations (normally the delivery of a product and related services), the agreed transaction price is allocated to the separate performance obligations in accordance with the contractually stated prices or, more rarely, in accordance with the relative stand-alone selling prices. Since the agreed prices are normally the stand-along selling prices within the meaning of IFRS 15, they do not need to be reallocated to the product delivery and services.

Revenue from the sale of service-type warranties is recognized pro rata temporis over the contractually agreed warranty period.

Revenue from royalties is recognized according to the substance of the underlying contract.

No financing component is included in the determination of the amount and timing of revenue recognition when the period between transferring the goods or services and the customer paying for the goods or services is 1 year or less.

Incremental costs of obaining contracts with customers (mainly sales commissions) which are amortized over 1 year or less are expensed immediately.

Interest income is recognized pro rata temporis using the effective interest method. Dividends are recognized when the legal right to receive the payment is established.

Expense recognition
Expenses are generally recognized when it is probable that there will be an outflow of economic benefits from the entity.

Research and development costs are expensed as incurred unless they can be capitalized as part of the cost of the asset. Subsidies for research and development are deducted from the expenses when they become receivable for research and development projects that have been performed and the associated expenditure.

The company is liable to its customers for flawless functioning of the products sold during the contractual warranty period. The corresponding warranty provisions are recognized by debiting cost of sales when revenue is recognized.

Intangible assets
In accordance with IAS 38 *Intangible Assets*, internally generated intangible assets are recognized only if it is probable that future economic benefits will flow to the entity and the cost of the asset can be measured reliably.

Acquired and internally generated intangible assets are initially measured at cost. Intangible assets with finite useful lives are subsequently measured at cost less any accumulated amortization and any accumulated impairment losses. Amortization is charged over the useful life using the straight-line method. The major part of amortization is contained in cost of sales.

Intangible assets with indefinite useful lives as well as goodwill are not amortized and are therefore recognized at cost less any impairment losses.

Development costs are capitalized if all of the criteria set forth in IAS 38.57 are satisfied. These include, for example, demonstrating the technical feasibility of completing the intangible asset so that it will be available for use or sale. Other criteria relate to the intention to complete the intangible asset and the ability to use or sell it. In addition, it must generate future economic benefits for the company.

The entities of the ZEISS Group perform development work at the limit of the possible and set new technological standards. That is why only a small portion of development costs is capitalized in the ZEISS Group, as the criteria for recognition as part of the cost of an intangible asset are not all satisfied until a relatively late stage.

The costs directly attributable to development, including appropriate development-related overheads, are recognized as part of the cost of an asset. Amortization of capitalized development costs begins when the asset is available for use and is charged using the straight-line method over the expected product life cycle or based on unit numbers defined in business plans. Research costs and development costs that cannot be capitalized are expensed in the period in which they are incurred.

Amortization is based on the following ranges of useful lives:

	Useful life
Patents, industrial rights, licenses, software	2 to 20 years
Development costs	2 to 10 years
Other intangible assets	2 to 10 years

Property, plant and equipment
Property, plant and equipment except for right-of-use assets are measured at cost less any accumulated depreciation and any accumulated impairment losses in accordance with IAS 16 *Property, Plant and Equipment*. The cost of self-constructed assets includes direct costs and a portion of materials and production overheads. The cost of creating qualifying assets, i.e. for assets that take a substantial period of time to produce, includes borrowing costs. Depreciation is charged on a straight-line basis over the asset’s useful life.

Depreciation is based on the following ranges of useful lives:

	Useful life
Buildings and structures	2 to 50 years
Technical equipment and machinery	2 to 21 years
Other equipment, furniture and fixtures	2 to 25 years

Impairment of intangible assets and property, plant and equipment

IAS 36 *Impairment of Assets* requires assessing at the end of each reporting period whether there is any indication that the assets reported in the statement of financial position may be impaired. In addition, annual impairment testing is required for intangible assets with indefinite useful lives and goodwill. If any indication of impairment exists or if impairment testing is required, the Group carries out impairment testing. This involves estimating the recoverable amount of the asset or cash-generating unit (CGU) in order to determine any need to record an impairment loss. The recoverable amount is the higher of the fair value less costs to sell and the value in use – determined for the individual asset or cash-generating unit in each case.

In assessing value in use, the estimated future cash flows are discounted to their present value using an aftertax risk-adjusted discount rate based on the discounted cash flow method. The discount rates are calculated using the parameters risk-free base interest rate, risk premium (market risk premium, country risk and beta factor), borrowing costs and tax effect, and reflect the capital structure of the cash-generating unit. The detailed planning period for future cash flows covers 3 fiscal years. For the following fiscal years, the cash flows of the third detailed planning year are rolled forward taking into account appropriate growth. An impairment exists when the carrying amount of the asset or cash-generating unit exceeds the recoverable amount. Such impairment loss is recognized in the income statement immediately.

With the exception of goodwill, impairment losses recognized in prior years are reversed if the reasons for recognizing the impairment no longer exist. The reversal is limited to ensure that the carrying amount is not exceeded that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. The reversal of impairment losses recognized on goodwill is not permissible.

Government grants

In accordance with IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance*, government grants are only recorded if it is reasonably certain that the conditions attached to the grants will be fulfilled and the grants actually awarded. As a rule, public investment grants are deferred and amortized through profit or loss over the useful lives of the related assets. Grants related to income are offset against the corresponding expenses in the period in which the expenses are incurred.

Leases

IFRS 16 *Leases* requires lessees to recognize all leases in the form of a right-of-use asset and corresponding lease liability. The lease liability is measured at the present value of the outstanding lease payments This is presented in the income statement as a financing transaction. Consequently, the right-of-use asset must be depreciated on a straight-line basis and the lease liability amortized using the effective interest method. Renewal, termination and purchase terms are taken into account during initial measurement of the lease liability if their exercise has become reasonably certain. The exemptions for low-value leased assets and short-term leases will be used.

Sale-and-leaseback agreements are presented using the same principles.

Lessors must assess as of the commencement date whether a lease is a finance lease or an operating lease. The lease is a finance lease if all significant risks and rewards are transferred. In this case, a receivable is recognized in the amount of the net investment in the lease. The corresponding interest income is presented in the financial result. Lease payments under operating leases are recognized in income on a straight-line basis over the lease term.

Financial instruments
A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

Financial assets and financial liabilities are reported in the consolidated statement of financial position as of the date on which ZEISS becomes party to the contract. Regular way purchases and sales of financial assets are generally recognized on the settlement date. As of the date of initial recognition, financial assets and financial liabilities are measured at fair value and classified in accordance with the provisions of IFRS 9.

Fair value generally corresponds to the market or quoted value. If no active market exists, fair value is calculated using generally accepted valuation techniques (for example, using the present value method or option pricing models). Amortized cost corresponds to the amount at inital recognition adjusted for repayments, impairment and the amortization of any discounts or premiums.

IFRS 9 divides financial assets into the following measurement categories:

» At amortized cost (AC)
» At fair value through profit or loss (FVPL)
» At fair value through other comprehensive income (FVOCI)

The classification and measurement of financial assets is based on the business model and the structure of the cash flows. Classification depends on

» whether the underlying business model is aimed at holding financial assets to collect contractual cash flows (“hold” business model), whether the objective is to both collect contractual cash flows and sell financial assets (“hold and sell” business model) or solely sell the financial assets (“sell” business model) and
» whether the contractual cash flows are solely payments of principal and interest (SPPI).

The business model is determined based on the corporate management of the ZEISS Group. To this end, the financial instruments are combined into groups, each of which have a consistent underlying business model. The characteristics of the contractual cash flows are reviewed at the level of the individual financial instruments.

Financial assets whose contractual cash flows are solely payments of principal and interest on the principal amount and that are held under a ”hold” business model are measured at amortized cost. These are trade receivables, cash and cash equivalents, cash at banks, loans, securities and sundry financial assets. The assets are subsequent measured using the effective interest method. Gains and losses from impairment or derecognition are recognized in the income statement.

If the objective is to both collect the contractual cash flows and sell the financial assets (“hold and sell” business model), the financial assets are measured at fair value through other comprehensive income (FVOCI). Unrealized gains and losses are recognized in other comprehensive income. If the assets are sold the cumulative gains and losses from the change in fair value are reclassified to the income statement. Interest income is recognized in profit or loss using the effective interest method. This mainly relates to securities.

Financial assets that do not meet the SPPI criteria or are held under a “sell” business model are measured at fair value through profit or loss (FVPL). Gains and losses from the change in fair value are recognized directly in the income statement. This mainly relates to securities and derivatives.

Financial instruments classified as equity instruments are allocated at “fair value through profit or loss” (FVTPL) measurement category. Entities may also opt to allocate equity instruments at “fair value through other comprehensive income” (FVOCI) measurement category. If the option is exercised, the gains or losses from this financial instrument are recognized in other comprehensive income and may not be subsequently reclassified to the income statement. For specific assets, the ZEISS Group makes occasional use of the option to recognize them at fair value through other comprehensive income. The option was exercised for the equity investment in MicroOptx Inc., Minnesota, USA, acquired in the fiscal year in order to present potential fluctuations in value directly in equity. In the fiscal year, the acquisition cost is equivalent to the fair value.

Financial assets are subject to credit risk which is accounted for by recognizing a risk provision or, if losses have already occurred, an impairment loss. Specific allowances and portfolio-based allowances based on the expected credit loss model are recognized to cover the credit risk. The extent of expected losses is categorized according to a 3-stage model (general approach) depending on whether the credit risk of a financial instrument has increased significantly since initial recognition. Stage 1 comprises financial assets that have not deteriorated significantly in credit quality since initial recognition. In these cases, 12-month expected credit losses are recognized. If there is a significant increase in the risk of default by the debtor, the financial instrument is allocated to stage 2 and an allowance is recognized in the amount of the expected losses over the entire term or life of the asset. If there is further objective evidence of impairment, the financial assets are allocated to stage 3. Objective evidence includes delay of payment by more than 90 days, information about financial difficulties of the debtor or insolvency proceedings filed against the debtor. The general approach is used to determine the expected credit losses for all assets except trade and other receivables.

Offsetting of financial instruments

In the ZEISS Group, derivative financial transactions are concluded in accordance with the German master agreement for financial futures contracts. They do not meet the offsetting criteria pursuant to IAS 32 *Financial Instruments: Presentation* since offsetting is enforceable only in the event of insolvency.

In the ZEISS Group, credit notes received are offset against corresponding trade payables, and trade receivables offset against corresponding credit notes if these fulfill the offsetting criteria pursuant to IAS 32.

Inventories

Materials and supplies as well as merchandise are measured at costs of purchase, which are generally determined using the average cost method. Work in progress and finished goods are measured at costs of conversion. In addition to direct materials as well as direct labor, costs of conversion include an appropriate portion of materials and production overheads as well as production-related depreciation and production-related administrative expenses.

Write-downs are recorded on inventories when the costs of purchase or conversion exceed the estimated net realizable value. All inventory, selling and income risks are thus given adequate consideration. If the reasons for a write-down no longer apply, it is reversed to the lower of cost or estimated net realizable value.

Trade and other receivables

Trade and other receivables are accounted for at nominal value or amortized cost. The simplified approach is applied to determine allowances for trade receivables and receivables under financial leases. According to this, expected credit losses are always calculated over the entire lifetime of financial instruments. As a practical expedient, the ZEISS Group applies a provision matrix for non-credit-impaired receivables which determines the expected losses as a percentage based on the number of days overdue. The calculation is based on historical loss experience and is supplemented by relevant forward-looking parameters. If information about financial difficulties of the debtor is available, the receivables are assessed on a case-by-case basis and an allowance is recognized for credit-impaired receivables. An allowance account is used to post changes to allowances.

A financial instrument is derecognized if the rights to cash flows have expired, for example, due to the conclusion of insolvency proceedings, a court ruling or depending on other circumstances in the local law. A financial asset is also derecognized if the significant risks and rewards are transferred.

Cash and cash equivalents
Cash and cash equivalents comprise cash on hand and cash at banks as well as all investments with an original term of less than 3 months.

Provisions for pensions and other post-employment benefits
The entities of the ZEISS Group have various pension plans. In addition, some foreign subsidiaries have agreed to provide post-employment healthcare benefits on a certain scale.

Payments for defined contribution obligations including contributions to statutory pension funds are recognized as an expense for the period.

Defined benefit obligations are measured according to IAS 19 *Employee Benefits* using the projected unit credit method allowing for expected future adjustments to salaries and pensions.

The provisions for pensions and similar obligations at German Group entities are determined based on actuarial principles and using the 2018 G mortality tables published by Prof. Dr. Klaus Heubeck. The provisions for pensions and similar obligations at entities outside Germany are determined using the relevant local basis for calculation and local parameters.

External funds invested to cover defined benefit obligations are measured at fair value and offset against the corresponding obligations.

Changes in the portfolio and variances in actual trends compared to the assumptions used for calculation purposes, as well as changes in the assumptions for the measurement of defined benefit obligations, result in actuarial gains and losses, which are recognized directly in other reserves within equity and thus directly affect the consolidated statement of financial position and the consolidated statement of comprehensive income.

The balance of the defined benefit obligation and plan assets (net defined benefit obligation or net plan assets) is discounted using the interest rate on which the measurement of the defined benefit obligation is based. The resulting net interest cost or income is recognized in the interest expenses or interest income in the consolidated income statement. Service cost is disclosed in the earnings before interest and taxes (EBIT).

Deferred compensation
ZEISS offers employees with unlimited employment contracts the option of using untaxed compensation to make provision for old age. Depending on the terms of their contract, the employees may convert up to 3 monthly salaries a year. The amounts converted are paid into an employer’s pension liability insurance policy and the associated benefits are pledged to the employees. The amount and timing of the receivables from the employer’s pension liability insurance matches those of the benefits payable to employees. As the receivables are pledged, they generally satisfy the requirements for plan assets and are presented on a net basis. The pension plan is therefore classified as a defined contribution plan from a substance-over-form perspective. If the future benefits under the employer’s pension liability insurance are higher than the benefit obligation to the employee, the employee receives the higher amount.

The amount is dependent on the age of the employees at the time of conversion of their compensation and the employees’ decision on whether to have the deferred compensation paid out as a one-off payment or as a pension. In addition to the conversion of compensation, the deferred compensation system may include invalidity and surviving dependants' benefits, depending on the model chosen.

Other provisions
In accordance with IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*, present obligations to third parties arising from past events are disclosed within other provisions if it is probable that an outflow of resources will be required and can be measured reliably. The provisions are recognized at full cost.

Where the effect of the time value of money is material and the remaining term of the obligation can be determined reliably, non-current provisions are recognized at the amount needed to settle the obligation, discounted to the reporting date. In such cases, the increase in the provision due to the passage of time is recognized as an interest expense.

The provisions for obligations under the German phased retirement scheme, long-service awards and death benefits are determined and measured on the basis of actuarial reports or similar parameters.

Restructuring provisions
Restructuring provisions are recognized when an entity has made the decision to restructure and has a detailed formal plan for the restructuring, stating the parts of a business or locations concerned, the approximate number of employees affected and when the plan will be implemented, and it has been announced to those affected or their representatives before the reporting date. The amount of the provision covers all direct expenditures arising from the restructuring which necessarily arise during the restructuring and are not associated with the ongoing or future activities of the entity.

Warranty provisions
Warranty obligations may be legal, contractual or non-contractual (assurance-type warranties). Provisions are recognized for expenses expected to be incurred under guarantee or warranty obligations unless there are separate performance obligations. Warranty claims are expected especially when the warranty period has not yet expired, when warranty expenses were incurred in the past or when there is specific indication of pending warranty cases. The warranty risk is derived either from individual estimates or past experience and is provided for accordingly.

Provisions for litigation risks
Provisions are recognized for risks arising from litigation in which entities of the ZEISS Group are the defendants and if it is more likely than not that the outcome will be negative. They are measured at the amount that the company expects to pay in the event of a negative outcome. This amount includes the amounts payable by the company, such as damages and severance payments as well as anticipated legal costs.

Deferred taxes
Deferred taxes are recognized using the liability method according to IAS 12 *Income Taxes*.

Deferred tax assets and liabilities are recognized on all temporary differences between the IFRS carrying amounts and the tax accounts of consolidated entities and on consolidation measures.

Further, deferred tax assets for future economic benefits from unused tax losses and unused tax credits are taken into account if it is probable that they will be used.

The carrying amount of deferred tax assets is reviewed at every reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the deferred tax asset to be utilized. A previously unrecognized deferred tax asset is reassessed and recognized to the extent that it has become probable that future economic benefits will be recovered.

Deferred tax liabilities are recognized for the expected income tax and withholding tax on expected dividend payments by subsidiaries. In contrast, deferred tax liabilities are not recognized for temporary differences from retained earnings of subsidiaries as the temporary differences will not reverse in the foreseeable future.

Deferred taxes relating to items recognized in other comprehensive income are likewise recognized in other comprehensive income and not through profit or loss.

Deferred tax assets and deferred tax liabilities are offset if a group entity has a legally enforceable right to offset current tax assets and current tax liabilities and these relate to income taxes levied by the same taxation authority on the same taxable entity. Consequently, deferred tax assets and liabilities are netted within consolidated tax groups.

Liabilities
Financial liabilities are normally measured at amortized cost using the effective interest method. They comprise liabilities to banks, loans and other financial liabilities. Non-interest-bearing loans and loans bearing off-market interest rates are recognized at present value and increased due to the passage of time over their term to maturity.

The fair value option offered by IFRS 9 is not applied.

NOTES TO THE CONSOLIDATED INCOME STATEMENT

7 Revenue

Revenue by region breaks down as follows:

	2018/19		2017/18	
	€ k	%	€ k	%
Germany	662,591	10	609,761	10
EMEA (without Germany)	2,646,096	41	2,443,226	42
Americas	1,394,289	22	1,346,916	24
APAC	1,725,079	27	1,417,267	24
	6,428,055	**100**	**5,817,170**	**100**

Of revenue, €5,767m (prior year: €5,254m) is attributable to the sale of goods, €626m (prior year: €516m) to the rendering of services and €35m (prior year: €47m) to the granting of licenses.

Revenue of €635m was recognized under contractual liabilities at the beginning of the reporting period.

The aggregate amount of the transaction price allocated to the performance obligations of agreements with a term of more than 1 year (service and maintenance agreements) that are unsatisfied or partially unsatisfied as of the end of the reporting period came to €142m at the end of the reporting period. These performance obligations are expected to generate revenue of €118m in fiscal year 2019/20 and €24m in the subsequent fiscal years.

8 Other income

Other income contains tax refund claims from taxes other than income taxes, rental income and income from the sale of scrap, as well as other income not attributable to functional costs.

9 Other expenses

Other expenses contain losses from the disposal of non-current assets, expenses from allocations to other provisions and other operating expenses not attributable to functional costs.

10 Financial result

Interest result

	2018/19	2017/18
	€ k	€ k
Interest income	**11,283**	**9,805**
» thereof from affiliates	298	277
Interest expenses	**55,889**	**35,159**
» thereof to affiliates	108	134
» thereof from leases	7,198	944
» thereof net interest cost for pensions	21,694	22,160
	-44,606	**-25,354**

Other financial result

	2018/19	2017/18
	€ k	€ k
Income from investments	1,842	581
Income from profit transfer	787	1,952
Expenses for loss absorption	223	842
Investment result	**2,406**	**1,691**
Income/expenses from exchange differences	-23,706	-22,638
Income/expenses from changes in market value	-26,742	-13,605
Sundry other financial result	839	6,358
Other financial result	**-47,203**	**-28,194**

Income from investments includes income from affiliates of €182k (prior year: €173k).

The expenses from exchange differences and changes in market value should be seen in the context of the hedging of currency risks.

11 Income taxes

Income taxes include domestic and foreign income taxes, the reversal of tax provisions, tax refunds and deferred taxes.

Income taxes break down as follows:

	2018/19	2017/18
	€ k	€ k
Current tax expenses less tax refunds and reversal of tax provisions	287,604	216,600
Deferred tax income	-63,614	-33,078
» thereof from temporary differences	-31,209	-55,645
» thereof from changes in tax rates	2,629	23,596
» thereof from unused tax losses including any reductions	-35,034	-1,029
	223,990	**183,522**

Deferred taxes are determined on the basis of the tax rates that apply or are expected to apply based on the tax laws that have been enacted or substantively enacted in the individual countries at the time of realization. In Germany, a corporate income tax rate of 15.0% currently applies. Taking into account the solidarity surcharge and the different trade tax levy rates, the rates for German entities are in the range of 27.7% to 31.3% (prior year: 27.7% to 31.0%). The tax rates form the basis for the calculation of current taxes.

The nominal tax rates applicable outside Germany in the reporting period ranged between 7.5% and 34.6% (prior year: 7.5% and 35.0%).

The total amount of deferred tax assets and liabilities as of 30 September 2019 is allocated to the following items of the statement of financial position:

	30 Sep 19		30 Sep 18	
	Assets	Liabilities	Assets	Liabilities
	€ k	€ k	€ k	€ k
Non-current assets	**21,462**	**113,956**	**21,776**	**65,700**
Intangible assets	10,426	77,430	11,062	39,832
Property, plant and equipment	7,140	34,337	4,923	25,125
Other non-current assets	3,896	2,189	5,791	743
Current assets	**90,014**	**28,579**	**71,606**	**23,344**
Inventories	73,393	5,744	61,011	5,324
Receivables and other current assets	16,621	22,835	10,595	18,020
Non-current liabilities	**632,117**	**3,769**	**456,579**	**917**
Provisions for pensions and similar obligations	575,888	3,019	414,423	823
Other non-current liabilities	56,229	750	42,156	94
Current liabilities	**118,979**	**9,808**	**86,302**	**6,360**
Outside basis differences	**0**	**2,604**	**0**	**2,902**
Unused tax losses	**112,624**	**0**	**76,859**	**0**
Total deferred taxes	**975,196**	**158,716**	**713,122**	**99,223**
Impairment losses	8,391	0	2,456	0
Offsetting	67,144	67,144	44,579	44,579
Deferred taxes, net	**899,661**	**91,572**	**666,087**	**54,644**

Unused tax losses include deferred tax assets from unused tax losses as well as from tax credits.

Apart from Germany, the following countries also recognized unused tax losses that are likely to be used: Australia, Brazil, China, France, Spain and the USA (prior year: Brazil, China, France, Israel, Spain and the USA).

The unused tax losses for which no deferred taxes were recognized amount to €141,510k (prior year: €148,502k). Most of these are available for offsetting for more than 5 years or never expire. As of the reporting date these unused tax losses were classified as not likely to be usable because based on the forecasts it is not likely that future taxable profit will be available.

Consolidation measures gave rise to deferred tax assets of €60,150k (prior year: €51,858k) and deferred tax liabilities of €74,247k (prior year: €37,988k).

In the reporting period, the tax rate of the parent company Carl Zeiss AG of 28.78% (prior year: 28.78%) was used as the tax rate applicable for the reconciliation of the expected income tax expense of €279,605k (prior year: €206,799k), based on earnings before taxes, to the current income tax expense of €223,990k (prior year: €183,522k).

The tax reconciliation statement is presented in the table below:

	2018/19	2017/18
	€ k	€ k
Earnings before taxes (EBT)	971,525	718,551
Expected income tax expense (= 28.78% x EBT; prior year: = 28.78% x EBT)	**279,605**	**206,799**
Differences from diverging tax rates	-15,815	-10,839
Effects of changes in tax rates	2,629	23,596
Effects of non-deductible expenses	13,080	16,538
Effects of tax-free income	-5,615	-4,858
Effects relating to other periods	-38,776	-29,699
Permanent effects	-7,359	-9,537
Other	-3,759	-8,478
Current income tax expense	**223,990**	**183,522**

NOTES TO THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

12 Intangible assets

The goodwill amounting to €1,293,541k (prior year: €664,537k) is tested for impairment annually at the level of the cash-generating units.

The cash flows referred to in the impairment test are determined on the basis of detailed plans with a planning horizon of 3 years. For the following fiscal years, the cash flows of the last detailed planning year are rolled forward with a growth rate of 1.0%. The discount rates are based on an after-tax weighted average cost of capital (WACC) depending on the cash-generating unit. The cost of capital is a material parameter in impairment testing. A change in WACC has a direct impact on value in use.

In a sensitivity analysis, an increase in the discount rate by 1 percentage point and a decrease in the long-term growth rate by half a percentage point were simulated. This simulation indicates an impairment loss of €32.4m for Research Microscopy Solutions only when combining the 2 adjustments.

Goodwill is allocated to the cash-generating units on the basis of the internal organizational structure of the ZEISS Group. This allows goodwill to be allocated to the individual segments or, more specifically, strategic business units as follows:

	30 Sep 19		30 Sep 18	
	Carrying amounts	WACC (after tax)	Carrying amounts	WACC (after tax)
	€ k	%	€ k	%
» Semiconductor Mask Solutions	44,952	12.1	42,975	11.8
Semiconductor Manufacturing Technology	**44,952**		**42,975**	
» Industrial Quality Solutions	553,934	9.0	87,883	8.4
» Research Microscopy Solutions	50,164	8.4	48,035	9.1
Industrial Quality & Research	**604,098**		**135,918**	
» Ophthalmic Devices	306,895	7.8	155,461	10.3
» Microsurgery	4,303	7.8	4,188	10.3
Medical Technology	**311,198**		**159,649**	
» Vision Care	333,293	6.6	325,995	6.0
Consumer Markets	**333,293**		**325,995**	
Total	**1,293,541**		**664,537**	

The changes in the Industrial Quality & Research and Medical Technology segments' cash-generating units primarily stem from the first-time consolidation of GOM GmbH, Braunschweig, and Carl Zeiss Meditec Cataract Technology Inc. (formerly IanTECH, Inc.), Reno (USA). Other changes in the cash-generating units result from foreign currency translation in accordance with IAS 21.47.

Apart from goodwill, the ZEISS Group does not report any intangible assets with indefinite useful lives.

	Patents, industrial rights, licenses, software	Goodwill	Development costs	Other intangible assets	Total
	€ k	€ k	€ k	€ k	€ k
Cost					
1 October 2017	**424,305**	**681,246**	**231,097**	**136,216**	**1,472,864**
Change in the basis of consolidation	35,957	74,688	0	38,450	149,095
Additions	14,111	0	14,241	3,939	32,291
Disposals	14,039	354	23	2,238	16,654
Reclassifications	7,953	0	0	-7,953	0
Exchange differences	1,435	2,238	1,607	19	5,299
30 September 2018	**469,722**	**757,818**	**246,922**	**168,433**	**1,642,895**
Amortization/impairment					
1 October 2017	**357,181**	**92,338**	**147,162**	**99,421**	**696,102**
Change in the basis of consolidation	216	0	0	963	1,179
Additions	30,778	0	20,661	26,428	77,867
Disposals	13,975	0	0	2,234	16,209
Reclassifications	0	0	0	0	0
Exchange differences	1,273	943	630	-136	2,710
30 September 2018	**375,473**	**93,281**	**168,453**	**124,442**	**761,649**
Carrying amounts as of 30 September 2018	**94,249**	**664,537**	**78,469**	**43,991**	**881,246**

Cost					
1 October 2018	**469,722**	**757,818**	**246,922**	**168,433**	**1,642,895**
Change in the basis of consolidation	46,776	620,566	58,526	89,099	814,967
Additions	12,272	0	23,411	5,817	41,500
Disposals	2,360	0	0	2,068	4,428
Reclassifications	5,116	0	0	-5,116	0
Exchange differences	5,794	10,851	8,093	3,533	28,271
30 September 2019	**537,320**	**1,389,235**	**336,952**	**259,698**	**2,523,205**
Amortization/impairment					
1 October 2018	**375,473**	**93,281**	**168,453**	**124,442**	**761,649**
Change in the basis of consolidation	2,323	0	0	1,926	4,249
Additions	39,579	0	29,816	15,960	85,355
Disposals	2,338	0	0	1,332	3,670
Reclassifications	0	0	0	0	0
Exchange differences	5,178	2,413	2,455	2,481	12,527
30 September 2019	**420,215**	**95,694**	**200,724**	**143,477**	**860,110**
Carrying amounts as of 30 September 2019	**117,105**	**1,293,541**	**136,228**	**116,221**	**1,663,095**

13 Property, plant and equipment

	Land and buildings including buildings on third-party land	Technical equipment and machinery	Other equipment, furniture and fixtures	Assets under construction	Right-of-use assets	Total
	€ k	€ k	€ k	€ k	€ k	€ k
Cost						
1 October 2017	**740,551**	**866,831**	**951,924**	**89,139**	**0**	**2,648,445**
Change in the basis of consolidation	79	1,261	3,125	47	0	4,512
Additions	25,701	39,513	76,064	103,105	0	244,383
Disposals	2,082	17,681	46,401	7,115	0	73,279
Reclassifications	7,057	38,916	11,745	-57,718	0	0
Exchange differences	-528	-3,445	-1,808	-142	0	-5,923
30 September 2018	**770,778**	**925,395**	**994,649**	**127,316**	**0**	**2,818,138**
Depreciation/impairment						
1 October 2017	**330,480**	**594,949**	**749,621**	**0**	**0**	**1,675,050**
Change in the basis of consolidation	67	750	1,611	0	0	2,428
Additions	32,545	61,416	70,516	0	0	164,477
Disposals	1,624	15,366	32,552	0	0	49,542
Reclassifications	0	-27	27	0	0	0
Exchange differences	-11	-1,095	-1,252	0	0	-2,358
30 September 2018	**361,457**	**640,627**	**787,971**	**0**	**0**	**1,790,055**
Carrying amounts as of 30 September 2018	**409,321**	**284,768**	**206,678**	**127,316**	**0**	**1,028,083**

	Land and buildings including buildings on third-party land	Technical equipment and machinery	Other equipment, furniture and fixtures	Assets under construction	Right-of-use assets	Total
Cost						
1 October 2018	**770,778**	**925,395**	**994,649**	**127,316**	**0**	**2,818,138**
First-time application of IFRS 16	0	0	0	0	191,972	191,972
Change in the basis of consolidation	25,358	17,000	16,948	209	1,994	61,509
Additions	7,138	34,217	99,647	224,050	72,168	437,220
Disposals	11,162	25,312	38,375	488	0	75,337
Reclassifications	50,369	46,639	24,491	-121,499	0	0
Exchange differences	7,681	11,986	9,887	2,632	3,538	35,724
30 September 2019	**850,162**	**1,009,925**	**1,107,247**	**232,220**	**269,672**	**3,469,226**
Depreciation/impairment						
1 October 2018	**361,457**	**640,627**	**787,971**	**0**	**0**	**1,790,055**
First-time application of IFRS 16	0	0	0	0	0	0
Change in the basis of consolidation	1,631	5,545	7,713	0	0	14,889
Additions	44,103	65,025	79,203	0	45,460	233,791
Disposals	7,101	22,463	27,173	0	0	56,737
Reclassifications	0	17	-17	0	0	0
Exchange differences	4,843	7,358	6,267	0	2,331	20,799
30 September 2019	**404,933**	**696,109**	**853,964**	**0**	**47,791**	**2,002,797**
Carrying amounts as of 30 September 2019	**445,229**	**313,816**	**253,283**	**232,220**	**221,881**	**1,466,429**

Property, plant and equipment with a net carrying amount of €57,305k (prior year: €53,602k) are subject to restrictions on disposal or serve as collateral for liabilities. Accumulated contractual purchase commitments for property, plant and equipment and intangible assets total €317,301k as of the reporting date (prior year: €211,042k).

14 Other financial assets

	30 Sep 19		30 Sep 18	
		thereof due in more than 1 year		thereof due in more than 1 year
	€ k	€ k	€ k	€ k
Shares in affiliates	35,396	35,396	39,505	39,505
Investments	27,345	27,345	3,711	3,711
Loans	44,343	43,407	42,494	38,230
Securities	555,258	295,478	268,258	201,661
Derivatives	5,195	54	5,430	0
Sundry other financial assets	663,416	75,900	1,451,694	379,556
	1,330,953	**477,580**	**1,811,092**	**662,663**

The sundry other financial assets mainly consist of time deposits and the assets of entities within and outside Germany in connection with financing or securing obligations toward employees.

15 Other non-financial assets

Other non-financial assets mainly comprise prepaid expenses as well as tax reimbursement claims from taxes other than income taxes.

16 Inventories

	30 Sep 19	30 Sep 18
	€ k	€ k
Materials and supplies	483,718	370,951
Work in progress	542,415	449,894
Finished goods and merchandise	573,420	547,600
Advances	22,803	22,400
	1,622,356	**1,390,845**

The carrying amounts contain write-downs of €196,236k (prior year: €176,983k).

The write-downs recorded on inventories, which are recognized under cost of sales in the consolidated income statement, amounted to €61,063k in the reporting period (prior year: €51,032k). Write-downs of €10,865k (prior year: €9,121k) were reversed through profit or loss.

Cost of materials amounted to €2,078m in the fiscal year (prior year: €1,685m).

17 Cash and cash equivalents

	30 Sep 19	30 Sep 18
	€ k	€ k
Cash funds	599,230	569,085
Securities due in less than 90 days of their acquisition date	50,803	160,214
	650,033	**729,299**

Cash is composed of checks, cash on hand and cash at banks. The effective interest rate for cash at banks due in less than 90 days is mainly between -0.5% and 0.0% (prior year: -0.4% and 0.0%).

18 Equity

The *issued capital* of Carl Zeiss AG totaling €120,000k is unchanged compared to the prior year and is divided into 120,000,000 stocks at nominal value, all of which are held by the Carl Zeiss Foundation (Carl-Zeiss-Stiftung). A dividend of €54,328k was distributed in the reporting period (prior year: €48,850k).

The *capital reserves* are unchanged at €52,770k.

Retained earnings primarily contain:
» the legal reserve of Carl Zeiss AG of €5,950k
» the consolidated profit of the reporting year as well as the past results generated by the entities included in the consolidated financial statements less the associated non-controlling interests
» the acquisition or sale of shares in subsidiaries currently under control

Other reserves present the differences arising from the currency translation of foreign subsidiaries' separate financial statements without effect on income as well as remeasurement effects recognized in equity:
» defined benefit plans
» financial assets at fair value through other comprehensive income

Non-controlling interests contain the proportionate share of non-controlling interests in equity.

The development of consolidated equity is shown in the consolidated statement of changes in equity. The presentation is based on the requirements of IAS 1 *Presentation of Financial Statements*.

19 Provisions for pensions and similar obligations

The provisions for pensions include current and future pension obligations of Carl Zeiss AG and various subsidiaries. In addition, this item comprises the provisions of the US entities for medical care benefit obligations.

The ZEISS Group has both defined contribution plans and defined benefit plans.

In the case of defined contribution plans, the obligation of the entity concerned is limited to the payment of the agreed amounts. The expenses for defined contribution plans amounted to €93,315k in the reporting period (prior year: €82,118k).

With defined benefit plans, the entity's obligation consists of fulfilling the commitments made to current and former employees and their surviving dependants. Such obligations exist both at group entities in Germany and other countries. In the ZEISS Group, defined benefit plans are partly funded via provisions and partly via external funds.

The obligations from defined benefit plans primarily relate to pension obligations in Germany, the USA and the UK.

The characteristics and the associated risks of the defined benefit plans vary depending on the legal, tax and economic framework in the respective country.

German pension plans
The currently applicable pension arrangement for employees in Germany is an employer-financed defined benefit plan, comprising old age, disability and surviving dependants' pensions. These pensions are generally granted after a certain period of service.

The defined benefit plan is a modular system in which one pension module is calculated and fixed for each fiscal year. The contribution amount is based on the employee's income and the profit of the company during the fiscal year, with a basic contribution being guaranteed. The contribution is translated into a pension module on the basis of age- and interest-related factors. The pension modules acquired are aggregated and paid out as a life-long annuity.

For employees who were employed before 1 January 2000, vested rights from previous final-salary-based defined benefit plans must be taken into account for service periods up to 2010.

To reduce the risks associated with defined benefit plans (in particular longevity, salary increases and inflation), benefits are partly financed via external plan assets. To this end, a contractual trust arrangement (CTA) was introduced in Germany in fiscal year 2005/06, under which assets are transferred to a trust association such that they can be used only to settle the benefit obligations of the active employees. These assets satisfy the criteria set forth in IAS 19 for plan assets and can therefore be offset against the benefit obligations in these consolidated financial statements. Where the assets exceed the underlying secured claims, the excess is reported under non-current financial assets.

In addition to the employer-financed pensions, all employees in Germany have the option of participating in the company pension scheme in the form of deferred compensation. This is a defined contribution plan financed by converting salary components, for which the company takes out employer's pension liability insurance.

Pension plans outside Germany
Major pension plans exist primarily in the USA and the UK. These are employer-financed defined benefit plans, comprising old age and surviving dependants' benefits as well as medical benefits, depending on how they are structured. Some of these plans are based on final salary, while others are based on salary-related modules. The obligations from foreign defined benefit obligations are largely covered by assets in long-term external funds. The plans in the USA and in the UK are closed to new employees and existing obligations are now capped.

Actuarial assumptions are essential for all defined benefit plans. Besides life expectancy, which in Germany is determined based on the 2018 G mortality tables published by Prof. Dr. Klaus Heubeck, and in other countries on comparable local measurement bases, the following assumptions were made for the purposes of the actuarial calculations:

	Germany		Other countries	
	2018/19	2017/18	**2018/19**	2017/18
	%	%	%	%
Interest rate	1.00	1.90	0.27 to 7.75	0.47 to 8.00
Future salary increases	2.75	2.75	0.00 to 5.00	0.00 to 5.00
Future pension increases	1.75	1.75	0.00 to 3.10	0.00 to 3.40

The assumptions regarding interest rates, future salary and pension increases as well as mortality rates on which the calculation of the defined benefit obligation (DBO) was based vary depending on economic and other conditions in the country in which the plans exist. The interest rates were determined on an entity-specific basis as of the respective reporting date, depending on the weighted average duration of the pension obligations and in line with the respective maturities and currencies.

The amounts for defined benefit obligations recognized in the statement of financial position break down as follows:

				30 Sep 19
	Defined benefit obligations (DBO)	Fair value of plan assets	Effects of the asset ceiling	Net carrying amount from defined benefit obligations
	€ k	€ k	€ k	€ k
Germany	2,947,643	1,463,517	0	1,484,126
Other countries	344,842	262,579	0	82,263
Carrying amount	**3,292,485**	**1,726,096**	**0**	**1,566,389**
» thereof pension provisions				1,569,813
» thereof other financial assets				3,424

				30 Sep 18
	Defined benefit obligations (DBO)	Fair value of plan assets	Effects of the asset ceiling	Net carrying amount from defined benefit obligations
	€ k	€ k	€ k	€ k
Germany	2,375,217	1,308,500	0	1,066,717
Other countries	298,792	226,836	468	72,424
Carrying amount	**2,674,009**	**1,535,336**	**468**	**1,139,141**
» thereof pension provisions				1,143,660
» thereof other financial assets				4,519

The reconciliation from the funded status to the amounts recognized in the consolidated statement of financial position is as follows:

	30 Sep 19	30 Sep 18
	€ k	€ k
Present value of funded pension obligations	2,439,734	1,870,327
Plan assets	1,726,096	1,535,336
Funded status (net)	**713,638**	**334,991**
Present value of unfunded pension obligations	**852,751**	**803,682**
Adjustment on account of asset ceiling	0	468
Carrying amount	**1,566,389**	**1,139,141**
» thereof pension provisions	1,569,813	1,143,660
» thereof other financial assets	3,424	4,519

Pension provisions developed as follows:

	2018/19	2017/18
	€ k	€ k
1 October	**1,143,660**	**1,184,589**
Recognized through profit or loss		
Service cost	71,090	61,954
Net interest cost	21,694	22,160
Recognized in other comprehensive income		
Benefits paid	-75,565	-73,190
Remeasurements	555,638	72,209
Employer contributions	-147,606	-127,516
Exchange differences on translation	4,316	887
Other	-3,414	2,567
30 September	**1,569,813**	**1,143,660**

Service cost is recorded in functional costs; net interest cost is recorded in the financial result.

The present value of the defined benefit obligations developed as follows during the reporting period:

	2018/19	2017/18
	€ k	€ k
1 October	**2,674,009**	**2,585,228**
Change in the basis of consolidation	2,616	498
Service cost	71,090	61,954
Interest cost	54,023	52,503
Benefits paid	-87,114	-86,880
Remeasurements		
» Actuarial gains/losses as a result of changes in demographic assumptions	-5,050	24,688
» Actuarial gains/losses as a result of changes in financial assumptions	541,176	34,622
» Actuarial gains/losses as a result of experience adjustments	32,589	-2,658
Exchange differences on translation	13,103	2,935
Other	-3,957	1,119
30 September	**3,292,485**	**2,674,009**

The present value of the defined benefit obligations is attributable to:

	30 Sep 19	30 Sep 18
	€ k	€ k
Active employees	1,717,045	1,286,131
Former employees with vested rights	298,128	249,144
Pensioners	1,277,312	1,138,734
	3,292,485	**2,674,009**

A detailed reconciliation of the change in the fair value of plan assets is presented in the table below:

	2018/19	2017/18
	€ k	€ k
1 October	**1,535,336**	**1,408,893**
Change in the basis of consolidation	997	0
Interest income	32,329	30,493
Remeasurements	12,608	-21,007
Employer contributions	147,606	127,516
Employee contributions	243	192
Withdrawals for benefit payments	-11,549	-13,690
Exchange differences on translation	8,787	2,048
Other	-261	891
30 September	**1,726,096**	**1,535,336**

The actuarial gains/losses from the DBO and the remeasurement of the plan assets are recognized in other comprehensive income.

Employer contributions to plan assets for the following fiscal year are expected to amount to €3,645k.

These plan assets are used exclusively to settle the defined benefit obligations. The funding of these benefit obligations serves to cover future cash outflows as required by law in some countries and made on a voluntary basis in others.

Giving special consideration to the type of the underlying obligations, the assets transferred in Germany to Carl Zeiss Pensions-Treuhand e.V. are to be invested in the interest of the beneficiaries so as to maximize security and profitability while ensuring liquidity at all times. The objective of the investment is the long-term ability to fulfill the obligation.

The plan assets in the CTA are managed using an absolute return approach with the objective of achieving an attractive return over the investment horizon in order to earn the interest cost of the pension liabilities while controlling and limiting short-term risks. The target return is derived as a deterministic figure from the obligations.

Dynamic risk management aims to decrease the risks of potential losses in relation to strategic asset allocation (SAA) while generating a return comparable with the SAA over the course of a market cycle. The exposures of the asset classes are managed by means of derivatives on an annual basis using defined allocation ranges and taking into account a risk budget.

The portfolio of plan assets consists of the following components:

	30 Sep 19	30 Sep 18
	€ k	€ k
Equities and equity funds	479,574	492,373
Bonds and bond funds	761,642	509,967
Real estate and real estate funds	6,683	9,512
Cash and cash equivalents	227,301	309,182
Other assets	250,896	214,302
	1,726,096	**1,535,336**

Price quotations for the equity and equity funds as well as bonds and bond funds are almost exclusively in an active market; for the other investments, there are no market quotations.

Changes in the relevant actuarial assumptions would have the following effects on the defined benefit obligation as of the reporting date:

	30 Sep 19	
Change in the present value of the defined benefit obligations (DBO)	Increase by 0.5%	Decrease by 0.5%
	€ k	€ k
Interest rate	-318,010	372,823
Future salary increases	37,145	-33,212
Future pension increases	146,054	-133,305

A 1-year increase in life expectancy would lead to an increase of €174,872k in the present value of the defined benefit obligations.

The sensitivity analyses presented take into account ceteris paribus the change of a parameter, while retaining the calculation method.

To examine the sensitivity of the DBO with regard to a change in the assumed life expectancy, the mortality rates used were reduced in a comparative calculation so that the decrease results in an increase in life expectancy of roughly 1 year.

For the defined benefit obligations as of the reporting date, the following pension payments are forecast for the next 10 years, with the expected benefit payments being partly funded via plan assets:

Maturity profile of defined benefit obligations Estimated benefit payments for the coming fiscal years	€ k
Fiscal year 2019/20	87,078
Fiscal year 2020/21	88,927
Fiscal year 2021/22	90,939
Fiscal year 2022/23	93,106
Fiscal year 2023/24	95,551
Fiscal years 2024/25 up to and including 2028/29	507,097

The average weighted duration of the pension plans is about 22 years in Germany, about 13 years in the USA and about 18 years in the UK.

20 Other provisions

	30 Sep 19		30 Sep 18	
		thereof due within 1 year		thereof due within 1 year
	€ k	€ k	€ k	€ k
Provisions for income taxes	89,640	89,640	43,259	43,259
Provisions for personnel-related obligations	31,907	7,455	39,706	9,102
Provisions for sales-related obligations	179,364	127,981	206,503	153,149
Sundry other provisions	116,814	71,226	221,545	60,861
	417,725	**296,302**	**511,013**	**266,371**

Provisions for income taxes comprise amounts for taxes that have not yet been finally assessed.

Provisions for personnel-related obligations contain phased retirement obligations, long-service awards and early retirement arrangements, the timing and/or amount of which cannot yet be precisely determined. Provisions for sales-related obligations principally relate to warranty obligations. Sundry other provisions include provisions for environmental risks, legal costs and restructuring. The decrease in sundry other provisions is mainly due to the settlement of the legal dispute between NIKON, ASML and ZEISS.

	1 Oct 18	Change in basis of consolidation	Utilization	Reversal	Additions	Unwinding of the discount and effects from changes in the discount factor	Exchange differences	**30 Sep 19**
	€ k	€ k	€ k	€ k	€ k	€ k	€ k	€ k
Provisions for income taxes	43,259	25	-24,917	-363	71,219	0	417	89,640
Provisions for personnel-related obligations	39,706	3	-19,819	-2,665	14,439	5	238	31,907
Provisions for sales-related obligations	206,503	1,147	-54,181	-56,054	79,448	37	2,464	179,364
Sundry other provisions	221,545	2,500	-24,008	-122,172	38,303	75	571	116,814
	511,013	**3,675**	**-122,925**	**-181,254**	**203,409**	**117**	**3,690**	**417,725**

21 Financial liabilities

	30 Sep 19			30 Sep 18		
		thereof due within 1 year	thereof due in more than 5 years		thereof due within 1 year	thereof due in more than 5 years
	€ k	€ k	€ k	€ k	€ k	€ k
Liabilities to banks	191,923	19,806	0	207,076	39,127	27,498
Loans	52	52	0	5,052	5,052	0
Derivatives	31,409	30,026	0	19,069	18,996	0
Lease liabilities	224,518	52,989	69,848	11,457	3,806	0
Other financial liabilities	319,471	144,750	60,092	208,351	137,889	0
	767,373	**247,623**	**129,940**	**451,005**	**204,870**	**27,498**

Liabilities to banks

Promissory notes of €200m were placed in prior years. In June 2016, some of the promissory notes were renewed and some were refinanced at new conditions. The part of €33m that was not renewed was repaid to the investors. A further tranche of €18m was repaid in the fiscal year. The contractually agreed terms of the promissory notes totaling €149m break down as follows:
» €69m with a term of 5 years
» €52.5m with a term of 7 years
» €27.5m with a term of 10 years
Of this amount, a total of €69m is subject to floating interest rates and €80m to fixed interest rates.

As of 16 July 2014, Carl Zeiss AG concluded a revolving credit facility with a volume of €500m, a term of 5 years and an option of extending on 2 occasions with a syndicate of banks. Under an amendment agreement dated 2 August 2019, the revolving credit facility was refinanced before maturing with an unchanged credit facility of €500m and a new term of a further 5 years. The credit facility includes an option of extending on 2 occasions, by 1 year in each case.

The revolving credit facility serves as a strategic liquidity reserve for the ZEISS Group. €9.4m was drawn in the reporting period (prior year: €22.4m) to fund activities in other countries.

An annuity loan of €45m was borrowed from Kreditanstalt für Wiederaufbau under an agreement dated 20 January 2012. The loan is subject to fixed interest, is repaid in quarterly installments of €1,417k from 31 March 2014 to 30 December 2021 and has a residual carrying amount of €12,750k as of the reporting date.

Lease liabilities
The increase in lease liabilities is due to the first-time application of IFRS 16 *Leases*.

Other financial liabilities
Dividends payable and purchase price liabilities
The dividends payable and purchase price liabilities amount to €270m (prior year: €147m) and contain dividends payable to ASML Holding N.V., Veldhoven (Netherlands), and (contingent) purchase price liabilities from the acquisition of shares in Carl Zeiss Meditec Cataract Technology, Inc. (formerly IanTECH Inc.), Reno (USA), Bosello High Technology S.r.l., Cassano Magnago (Italy), and OPTEC GmbH, Düsseldorf.

Profit participation capital
The Annual General Meeting of Carl Zeiss AG adopted a resolution on 19 March 2012 authorizing the Executive Board to issue profit participation rights in the fiscal years 2011/12 through to 2015/16 for a total amount of up to €25,000k. As of the reporting date, these comprise participation certificates of the 2014-D, 2015-D and 2016-D series, each with a term of 5 years and a nominal volume totaling €7,193k.

In accordance with the terms and conditions of the participation certificates, they are subject to graded interest rates (0% to 20%) depending on the ZEISS Group's revenue performance.

The Annual General Meeting of Carl Zeiss AG adopted a resolution on 13 March 2017 authorizing the Executive Board to continue issuing profit participation certificates in the fiscal years from 2016/17 up to and including 2020/21 for a total amount of up to €25,000k. As of the reporting date, these comprise participation certificates of the 2017-D series, each with a term of 5 years and a nominal volume totaling €3,882k.

In accordance with the terms and conditions of the participation certificates, they are subject to graded interest rates (0% to 16%) depending on the ZEISS Group's revenue performance.

The recipients are the employees of Carl Zeiss AG and its affiliates in Germany, respectively. In addition, the boards of foreign group entities are authorized to issue similar rights to employees not eligible for the Carl Zeiss AG profit participation offer.

The terms and conditions of the participation certificates provide for termination rights for either party only in very limited exceptions.

For more information on the contractually agreed undiscounted cash outflows from the non-derivative financial liabilities and derivative financial instruments, please refer to note 23 Financial instruments and risk management.

22 Other liabilities

	30 Sep 19	30 Sep 19 thereof due within 1 year	30 Sep 18	30 Sep 18 thereof due within 1 year
	€ k	€ k	€ k	€ k
Contract liabilities				
» Advances received on account of orders	579,291	577,912	519,746	519,418
» Deferred income	141,413	117,524	146,671	116,428
» Other contract liabilities	25,118	25,118	0	0
Personnel-related obligations	447,257	447,257	377,548	377,548
Sales-related obligations	189,866	189,866	165,926	165,926
Sundry other liabilities	443,871	437,292	338,025	335,584
	1,826,816	**1,794,969**	**1,547,916**	**1,514,904**

Since the implementation of IFRS 15 in fiscal year 2018/19, contract liabilities from contracts with customers have been reported separately under other liabilities. Other contract liabilities essentially contain remaining performance obligations which were reported in other provisions in the prior year.

The sales-related obligations mainly relate to bonus and commission payments.

23 Financial instruments and risk management

As a global player, the ZEISS Group is exposed to credit risks, liquidity risks and market risks (currency, interest rate and other market risks) as part of its ordinary activities.

Credit risk

Credit risk stems from an adverse development in the economic conditions of the company's counterparties or borrowers and lies primarily in trade receivables. There is the threat of non-performance on the part of a contractual party. The maximum credit risk position of the ZEISS Group is equivalent to the carrying amounts of the financial instruments disclosed as financial assets. The risks are minimized by obtaining collateral, gathering credit ratings/references or analyzing track records of prior business relations, particularly payment behavior. The most frequent form is the retention of title. To reduce the credit risk with regard to trade receivables, invoices and corresponding credit notes are reported at the net amount in the statement of financial position provided netting is legally permissible and the receivable is intended to be settled on a net basis. Impairment losses are recognized for any credit risks associated with the financial assets.

The table below provides information on the remaining credit risk of trade and other receivables:

	30 Sep 19	30 Sep 18
	€ k	€ k
Trade and other receivables (gross)	**1,351,699**	**1,260,069**
Specific allowances and expected credit losses prior year: (portfolio-based) valuation allowance	42,459	24,995
Allowance for exchange differences	429	498
Trade and other receivables (net)	**1,309,669**	**1,235,572**
» thereof due in more than 1 year	46,271	40,989

Trade receivables include finance lease receivables of €17,975k (prior year: €16,358k).

Identifiable credit risks are accounted for by specific allowances on trade and other receivables. Bad debt allowances on trade receivables (credit-impaired and non-credit-impaired) developed as follows:

	2018/19	2017/18
	€ k	€ k
1 October	**24,995**	**37,765**
IFRS 9 adjustment	15,936	0
Change in the basis of consolidation	414	110
Utilization	-7,763	-6,811
Reversal	-5	-16,692
Additions	8,147	10,910
Exchange rate effects	735	-287
30 September	**42,459**	**24,995**

The table below presents the gross carrying amounts and average default rates for trade and other receivables according to the expected credit loss model:

	30 Sep 19	30 Sep 19
	€ k	in %
not past due	1,020,853	0.4
up to 30 days past due	159,902	2.6
31 to 60 days past due	53,457	4.3
61 to 90 days past due	26,148	5.8
more than 90 days past due	91,339	>5,8

The table below provides information on the offsetting of non-derivative financial instruments and the resulting limit to the credit risk:

	30 Sep 19	30 Sep 18
	€ k	€ k
Trade and other receivables (before offsetting)	1,386,052	1,300,226
Offsetting of credit notes issued	76,383	64,654
Remaining credit risk	**1,309,669**	**1,235,572**

The following offsetting of derivative financial instruments would be possible in the event of insolvency at a counterparty:

	30 Sep 19	30 Sep 18
	€ k	€ k
Derivatives with a positive market value	5,195	5,430
Amount available for offsetting in the event of insolvency	4,708	5,364
Remaining credit risk	**487**	**66**

Credit risk in connection with securities is mitigated by selecting counterparties with good credit ratings and by limiting the amounts invested. The Group invests exclusively in securities of investment grade issuers.

Another credit risk is connected to the investment of cash if the banks are not be able to meet their obligations. This risk is diversified by investing at different banks, defining limits per asset class and issuer, and applying high rating standards to business partners.

Liquidity risk
The liquidity risk of the ZEISS Group is the risk that it may not be able to meet its financial obligations (to repay financial liabilities or make interest payments).

The cash that serves this risk is generated primarily by operations. Where necessary or where it makes sense for strategic reasons, external sources of finance are drawn on in addition. Carl Zeiss Meditec AG also has the possibility of raising equity funds on the capital market.

For further details on financial liabilities, please refer to note 21 Financial liabilities.

To reduce the liquidity risk with regard to trade payables, invoices and corresponding credit notes issued are reported at the net amount in the statement of financial position provided netting is legally permissible and the liability is intended to be settled on a net basis.

The table below provides information on the offsetting of trade payables and the resulting limit to the liquidity risk:

	30 Sep 19	30 Sep 18
	€ k	€ k
Trade payables (before offsetting)	455,960	408,022
Offsetting of credits notes issued	8,233	5,075
Remaining liquidity risk	**447,727**	**402,947**

The following offsetting of derivative financial instruments with a negative market value would be possible in the event of insolvency of a counterparty:

	30 Sep 19	30 Sep 18
	€ k	€ k
Derivatives with a negative market value	31,409	19,069
Amount available for offsetting in the event of insolvency	4,708	5,364
Remaining liquidity risk	**26,701**	**13,705**

Liquidity is ensured by means of ongoing, group-wide liquidity monitoring and budgeting and a diversified investment policy that takes into account the terms to maturity and is implemented by Carl Zeiss Financial Services GmbH on a group-wide scale. The available liquidity as well as the revolving credit facility give the ZEISS Group adequate flexibility to cover the Group’s refinancing needs. The ZEISS Group is not subject to any concentration risk thanks to the diverse nature of its financing sources and its cash and cash equivalents.

The table below shows the contractually agreed undiscounted cash outflows for non-derivative financial liabilities:

	Undiscounted cash outflows			
	due within 1 year	due in 1 to 5 years	due in more than 5 years	**Total 30 Sep 19**
	€ k	€ k	€ k	€ k
Trade payables	447,727	0	0	**447,727**
Financial liabilities				
» Liabilities to banks	19,833	180,104	0	**199,937**
» Loans	52	0	0	**52**
» Lease liabilities	54,160	114,839	87,874	**256,873**
» Other financial liabilities	145,954	114,859	60,092	**320,905**
Guarantees	7,744	0	0	**7,744**

	Undiscounted cash outflows			
	due within 1 year	due in 1 to 5 years	due in more than 5 years	Total 30 Sep 18
	€ k	€ k	€ k	€ k
Trade payables	402,947	0	0	**402,947**
Financial liabilities				
» Liabilities to banks	41,423	149,072	28,531	**219,026**
» Loans	5,120	0	0	**5,120**
» Lease liabilities	4,508	8,165	0	**12,673**
» Other financial liabilities	139,064	70,463	0	**209,527**
Guarantees	6,395	0	0	**6,395**

The table below shows the contractually agreed undiscounted cash outflows for derivative financial instruments with a negative market value:

	Undiscounted cash outflows			
	due within 1 year	due in 1 to 5 years	due in more than 5 years	**Total 30 Sep 19**
	€ k	€ k	€ k	€ k
Derivative financial liabilities settled on a gross basis				
» Cash outflows	900,789	72,593	0	**973,382**
» Cash inflows	862,461	69,820	0	**932,281**

	Undiscounted cash outflows			
	due within 1 year	due in 1 to 5 years	due in more than 5 years	Total 30 Sep 18
	€ k	€ k	€ k	€ k
Derivative financial liabilities settled on a gross basis				
» Cash outflows	711,303	0	0	**711,303**
» Cash inflows	686,383	0	0	**686,383**

Market risk
The operations of the ZEISS Group are exposed to market price risks due to changes in exchange rates and interest rates. Business policy aims to minimize these risks by means of hedging. All hedging transactions are implemented at corporate level.

From an operating perspective, hedging rates are set for all relevant currencies. All business is transacted in compliance with the principle of strict separation of duties between front office (trading), middle office (financial risk management) and back office (settlement, documentation).

Exchange rate risk
On account of its global orientation, the ZEISS Group is primarily exposed to exchange rate risks in operations whenever revenue is generated or goods are purchased in a currency other than the currency in which the associated costs are incurred. This risk is mainly in relation to the US dollar, the Japanese yen, the pound sterling and the Chinese renminbi.

In order to reduce the effect of exchange rate fluctuations on operations, foreign exchange risks are mostly hedged using standard currency options and forward exchange contracts concluded with banks with excellent credit ratings.

For risk management and monitoring purposes value-at-risk analyses, supplemented by scenario, sensitivity and stress test analyses, are used to quantify exchange rate risks. These risk analyses are reported monthly to the Group's Executive Board.

These value-at-risk analyses are used to regularly assess the risk position from changes in exchange rates by calculating the maximum loss for a certain confidence level and retention period. Value at risk is determined on the basis of historical data and taking into account correlations between the transactions analyzed. The value at risk determined then shows the maximum loss that will not be exceeded over a period of 10 days with a probability of 95% (historical simulation).

In the past fiscal year, value at risk was unchanged on the prior year at €0.7m (prior year: €0.7m).

Interest rate risk
Interest rate risk arises from fluctuations in market interest rates.

These changes can affect both earnings (cash flow risk) and any fluctuations in the value of financial instruments (fair value risk). The ZEISS Group has various interest-sensitive assets and liabilities and therefore has interest rate exposure from its asset and liability management.

The interest rate risk is analyzed and managed centrally by Carl Zeiss Financial Services GmbH. The ZEISS Group has the following cash flow and fair value risks based on its floating-rate and fixed-rate instruments in this context.

Cash flow risk: A change of +/- 50 base points would have an effect of +/- €6.8m on profit or loss (prior year: +/- €8.7m). A change of +/- 50 base points would have no effect on equity.

Fair value risk: Assuming a change of -/+ 50 base points, the fixed-rate instruments allocated to the "fair value through other comprehensive income" (FVOCI) measurement category would have an effect of +/- €0.8m on equity (prior year as available-for-sale financial instruments: -/+ €2.4m).

The ZEISS Group is not exposed to material other price risks.

Carrying amounts and fair values by category

The table below presents the carrying amounts and fair values of the financial instruments accounted for by measurement category.

			30 Sep 19
		Carrying amount	Fair value
	Categories of IFRS 9	€ k	€ k
Trade and other receivables	AC/n.a.	1,309,669	*
Other financial assets			
» Shares in affiliates	n.a.	35,396	n.a.
» Investments	FVPL	22,294	*
	FVOCI	5,051	*
» Loans	AC	44,343	*
» Securities	AC	357,453	*
	FVPL	100,967	100,967
	FVOCI	96,838	96,838
» Derivatives	FVPL	5,195	5,195
» Sundry other financial assets	AC	663,416	*
Cash and cash equivalents	AC	650,033	*
Financial assets		**3,290,655**	**203,000**
Trade payables	FLAC	447,727	*
Other financial liabilities			
» Liabilities to banks	FLAC	191,923	202,945
» Loans	FLAC	52	*
» Derivatives	FVPL	31,409	31,409
» Lease liabilities	n.a.	224,518	n.a.
» Sundry other financial assets	FLAC	210,462	*
	FVPL	109,009	109,009
Financial liabilities		**1,215,100**	**343,363**
Aggregated by measurement category in accordance with IFRS 9			
Financial assets at amortized cost	AC	3,024,914	
Financial assets at fair value through other comprehensive income	FVOCI	101,889	96,838
Financial assets at fair value through profit or loss	FVPL	128,456	106,162
Financial liabilities at amortized cost	FLAC	850,164	202,945
Financial liabilities at fair value through profit or loss	FVPL	140,418	140,418

					30 Sep 18
		Carrying amount	(Amortized) cost	Amount recognized pursuant to IAS 17	Fair value
	Categories of IAS 39	€ k	€ k	€ k	€ k
Trade and other receivables	LaR/n.a.	1,235,572	1,219,214	16,358	*
Other financial assets					
» Shares in affiliates	AfS	39,505	39,505		*
» Investments	AfS	3,711	3,711		*
» Loans	LaR	42,494	42,494		*
» Securities	AfS	268,258			268,258
» Derivatives	FVtPL	5,430			5,430
» Sundry other financial assets	LaR	1,451,694			*
Cash and cash equivalents	LaR	729,299	729,299		*
Financial assets		**3,775,963**	**3,485,917**	**16,358**	**273,688**
Trade payables	FLAC	402,947	402,947		*
Other financial liabilities					
» Liabilities to banks	FLAC	207,076			219,138
» Loans	FLAC	5,052	5,052		*
» Derivatives	FVtPL	19,069			19,069
» Lease liabilities	n.a.	11,457		11,457	12,648
» Sundry other financial assets	FLAC	208,351	208,351		*
Financial liabilities		**853,952**	**616,350**	**11,457**	**250,855**
Aggregated by measurement category in accordance with IAS 39					
Loans and receivables	LaR	3,459,059	3,442,701		
Financial assets at fair value through profit or loss	FVtPL	5,430			5,430
Available-for-sale financial assets	AfS	311,474	43,216		268,258
Financial liabilities at amortized cost	FLAC	823,426	616,350		219,138
Financial liabilities at fair value through profit or loss	FVtPL	19,069			19,069

* The fair value approximately corresponds to the carrying amount.

Fair value measurement

Financial instruments are measured at fair value based on a 3-level fair value hierarchy:

Level 1: Fair value is calculated based on the quoted, unadjusted market prices on active markets.

Level 2: Fair value is calculated based on market data such as stock prices, exchange rates or interest curves pursuant to market-based valuation techniques (e.g. present value method or option pricing models).

Level 3: Fair value is calculated based on models with non-observable market data.

The decision on classification is made on the reporting date.

The table below shows the fair values of financial instruments as well as their respective classification:

Fair value				30 Sep 19
	Level 1	Level 2	Level 3	Total
	€ k	€ k	€ k	€ k
Securities	96,838	100,967	0	197,805
Derivatives	0	5,195	0	5,195
Financial assets	**96,838**	**106,162**	**0**	**203,000**
Liabilities to banks	0	202,945	0	202,945
Derivatives	0	31,409	0	31,409
Other financial liabilities	0	0	109,009	109,009
Financial liabilities	**0**	**234,354**	**109,009**	**343,363**

Fair value				30 Sep 18
	Level 1	Level 2	Level 3	Total
	€ k	€ k	€ k	€ k
Securities	205,392	62,866	0	268,258
Derivatives	0	5,430	0	5,430
Financial assets	**205,392**	**68,296**	**0**	**273,688**
Liabilities to banks	0	219,138	0	219,138
Derivatives	0	19,069	0	19,069
Lease liabilities	0	12,648	0	12,648
Financial liabilities	**0**	**250,855**	**0**	**250,855**

The financial liabilities allocated to Level 3 relate to a contingent purchase price obligation from an acquisition. The fair value is determined based on the criteria agreed in the purchase agreement and the expected probable target achievement. A market interest rate was used for discounting. An increase or decrease in the interest rate by 0.5 percentage points would result in a decrease or increase in the contingent consideration by a low single-digit million figure. A delay in the target achievement linked to milestones and simultaneous decrease in the forecast revenue targets by 15% would result in a decrease in the obligation by €16m.

The development of financial instruments allocated to Level 3 of the fair value hierarchy is presented in the table below:

	2018/19
	€ k
1 October	**0**
Additions	98,842
Recognized in the income statement	5,591
Exchange rate effects	4,576
30 September	**109,009**

Net gain or loss

The effects of financial instruments recognized in the income statement are presented on a net basis in the table below by category as defined in IFRS 9 *Financial Instruments* (prior year: IAS 39 *Financial Instruments: Recognition and Measurement*):

				2018/19
		thereof from interest	thereof from subsequent measurement	thereof from disposals
	€ k	€ k	€ k	€ k
Financial assets at amortized cost	18,886	8,237	10,651	-2
Financial assets at fair value through other comprehensive income	2,258	1,991	0	267
Financial assets and liabilities at fair value through profit or loss	-60,882	0	-26,665	-34,217
Financial liabilities measured at amortized cost	-28,399	-24,290	-4,109	0

				2017/18
		thereof from interest	thereof from subsequent measurement	thereof from disposals
	€ k	€ k	€ k	€ k
Loans and receivables	-539	8,023	-8,554	-8
Available-for-sale financial assets	896	650	92	154
Financial assets and liabilities at fair value through profit or loss	-18,731	0	-13,605	-5,126
Financial liabilities measured at amortized cost	-18,523	-9,866	-8,657	0

The “Financial assets measured at amortized cost” category contains the interest and currency result from the measurement of receivables and loans together with securities allocated to this category. The “Financial assets at fair value through other comprehensive income” category exclusively comprises securities. The “Financial assets and liabilities at fair value through profit or loss” category contains the gains or losses from the measurement of derivatives. The interest and currency result from the measurement of liabilities is recognized in the “Financial liabilities measured at amortized cost” category.

OTHER NOTES

24 Notes to the statement of cash flows

The consolidated statement of cash flows shows how the cash and cash equivalents reported in the statement of financial position of the ZEISS Group changed in the course of the fiscal year as a result of cash received and paid. In accordance with IAS 7 *Statement of Cash Flows*, a distinction is made between cash flows from operating activities, investing activities and financing activities.

The cash flows from investing activities and financing activities are determined on the basis of payments made or received. As for government grants for research and development, third-party subsidies are offset against investments in property, plant and equipment. The cash flows from operating activities, on the other hand, are derived indirectly from the consolidated profit or loss for the year. When performing the indirect calculation, changes in items of the statement of financial position considered in connection with operating activities are adjusted for effects from currency translation and changes in the basis of consolidation. Non-cash effects are likewise eliminated. Changes in the items of the statement of financial position concerned can therefore not be reconciled with the figures based on the published consolidated statement of financial position.

Changes to liabilities from financing activities during the fiscal year are shown in the table below:

	1 Oct 18	Adjustment due to new IFRSs	Cash changes	Non-cash changes			30 Sep 19
				from currency translation	from changes in the basis of consolidation	from other changes	
	€ k	€ k	€ k	€ k	€ k	€ k	€ k
Liabilities to banks	207,076	0	-23,135	482	7,500	0	191,923
Lease liabilities	11,457	191,972	-46,680	3,783	1,994	61,992	224,518
	218,533	**191,972**	**-69,815**	**4,265**	**9,494**	**61,992**	**416,441**

25 Contingent liabilities and assets

	30 Sep 19	30 Sep 18
	€ k	€ k
Liabilities from guarantees	7,744	6,395
Guarantee commitment obligations	0	167
Other contingent liabilities	1,171	1,720

The other contingent liabilities and the liabilities from guarantees and guarantee commitments were not recognized as provisions because the probability of an outflow of resources is considered remote.

26 Average headcount for the year and personnel expenses

	2018/19	2017/18
	Number	Number
Germany	12,397	11,429
EMEA (without Germany)	4,482	4,197
Americas	6,954	6,482
APAC	6,355	5,651
	30,188	**27,759**
Trainees	425	372
Total	**30,613**	**28,131**

The average number for the year is calculated on the basis of full-time equivalents.

Personnel expenses break down as follows:

	2018/19	2017/18
	€ k	€ k
Wages and salaries	1,874,843	1,657,092
Social security	291,132	258,933
Pension costs	75,141	67,888
Total	**2,241,116**	**1,983,913**

27 Leases

ZEISS as lessee

The Group has entered into lease agreements for office space, various non-current asset items and office equipment. The contracts have terms of between 1 and more than 5 years and some contain renewal and purchase options as well as price adjustment clauses.

As of 30 September 2019, the carrying amount of the right-of-use assets were:

	30 Sep 19
	€ k
Land and buildings	183,676
Technical equipment and machinery	2,268
Other equipment, furniture and fixtures	35,936

Depreciation of right-of-use assets breaks down as follows in the fiscal year:

	2018/19
	€ k
Land and buildings	26,597
Technical equipment and machinery	1,068
Other equipment, furniture and fixtures	20,126

Lease liabilities of €46,680k were repaid in fiscal year 2018/19. Interest expenses from the unwinding of the discount on lease liabilities are presented in the financial result.

The lease expenses include expenses for short-term leases of €7,051k and expenses for leases of low-value assets of €6,649k.

In fiscal year 2018/19, cash outflows for leases totaled €67,578k.

Future cash outflow of €40k was not included in the lease liability because it is not reasonably certain that the leases will be renewed or not terminated.

Income of €391k from the sublease of right-of-use assets was also recognized in the fiscal year.

ZEISS as lessor

Operating leases

The Group has entered into lease agreements mainly for buildings and technical equipment. In connection with product sales, the ZEISS Group offers financing models in the form of leases that are classified as operating leases based on their features.

The carrying amounts of these fixed assets contain the following amounts from operating leases under which the ZEISS Group is the lessor:

	30 Sep 19
	€ k
Land and buildings	165
Technical equipment and machinery	984
Other equipment, furniture and fixtures	2,205

Risks from leases stem in particular from lessees failing to adhere to agreed conditions or purchase agreed quantities. In these cases, compensation for minimum purchase volumes in the event of failure to purchase or the return of the leased asset to the lessor including appropriate compensation payments for early contract termination are agreed in the contracts as protection against such risks. Further risk mitigation measures that are carried out prior to entering into a contract include customer credit checks, a feasibility appraisal of the lease and a comprehensive analysis of the customer's realistic requirements.

Lease income came to €5,979k in the fiscal year. There was no lease income relating to variable lease payments not linked to an index or interest.

Accumulated future minimum lease payments under non-cancellable operating leases amount to:

	30 Sep 19
Term to maturity	€ k
Due within year 1	6,220
Due within year 2	3,593
Due within year 3	228
Due within year 4	147
Due within year 5	2
Due in more than 5 years	0
Total minimum lease payments	**10,190**

Finance leases

In connection with product sales, the ZEISS Group offers financing models in the form of leases that are classified as finance leases based on their features.

See the statements under operating leases for information on the risks from finance leases.

Outstanding minimum lease payments under finance leases are as follows:

	30 Sep 19
Term to maturity	€ k
Due within year 1	6,498
Due within year 2	4,844
Due within year 3	3,843
Due within year 4	1,807
Due within year 5	1,056
Due in more than 5 years	611
Future undiscounted cash inflows	**18,659**
Unearned finance income	684
Finance lease receivables	**17,975**

Outstanding minimum lease payments under finance leases in fiscal year 2017/18:

	30 Sep 18			
		thereof due within 1 year	thereof due in 1 to 5 years	thereof due in more than 5 years
	€ k	€ k	€ k	€ k
Gross investment	17,840	6,080	11,148	612
Unearned finance income	1,482	681	762	39
Present value	**16,358**	**5,399**	**10,386**	**573**

28 Government grants

The government grants received in the reporting period were as follows:

	2018/19	2017/18
	€ k	€ k
Research and development grants	7,502	10,434
Grants related to assets	5,595	6,137
Other grants related to expenses	133	526
	13,230	**17,097**

29 Related party disclosures

Related parties as defined by IAS 24 *Related Party Disclosures* include the Carl Zeiss Foundation (Carl-Zeiss-Stiftung), Heidenheim an der Brenz and Jena, the entity SCHOTT AG, Mainz, owned by the Carl Zeiss Foundation, the associates, joint ventures and non-consolidated subsidiaries as well as the members of the Executive Board and the Supervisory Board of Carl Zeiss AG.

All transactions with the related parties are settled at arm's length conditions.

In the reporting year, the ZEISS Group acquired several properties from the SCHOTT Group in Jena to develop its high-tech operations at this location.

The table below shows receivables from and liabilities to entities and investments that are not included in the consolidated financial statements of Carl Zeiss AG:

	30 Sep 19	30 Sep 18
	€ k	€ k
Receivables	45,309	37,885
Liabilities	15,697	19,089

These receivables and liabilities mainly stem from trade and cash management. The liabilities as of 30 September 2018 contain a loan of €5,000k granted by the Carl Zeiss Foundation to Carl Zeiss AG at arm’s length conditions, which was repaid in full in fiscal year 2018/19.

The table below shows the goods and services supplied to and received from entities and investments that are not included in the consolidated financial statements of Carl Zeiss AG:

	2018/19	2017/18
	€ k	€ k
Goods and services supplied	30,339	30,018
Goods and services received	34,230	40,199

In the reporting period, there were no transactions between the ZEISS Group and members of the Executive Board and the Supervisory Board and their family members above and beyond the existing employment, service or appointment relationships and the related contractually agreed remuneration.

Information on the remuneration of board members is contained in note 33 Remuneration of the Executive Board and the Supervisory Board.

30 German Corporate Governance Code

The Management Board and the Supervisory Board of the listed company Carl Zeiss Meditec AG, Jena, included in the consolidated financial statements have issued a declaration in accordance with Sec. 161 AktG on the recommendations issued by the government commission on the German Corporate Governance Code and made it available to stockholders on the company’s website (www.zeiss.de/meditec-ag/ir).

31 Audit fees

The Supervisory Board of Carl Zeiss AG engaged Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart (Germany), to audit the consolidated financial statements. The audit fees relate to the group auditor Ernst & Young GmbH, Germany.

	2018/19	2017/18
	€ k	€ k
Audit services	1,718	1,457
Other attestation services	108	142
Tax advisory services	45	50
Other services	45	76

32 Subsequent events

On 26 November 2019, Carl Zeiss AG signed an agreement on the complete takeover of Saxonia Systems AG, Munich, after ZEISS had acquired a 25% stake in the specialty enterprise for individual software solutions in 2018. The acquisition will take effect with the approval of the German Cartel Office, which is expected in February 2020. With this acquisition, ZEISS is systematically expanding its software competence and securing the expertise and resources of Saxonia Systems AG for the realization of strategically important digital projects. Saxonia Systems AG has been an important software development partner for ZEISS for more than 10 years. The joint projects include innovative cloud-based solutions in the field of medical technology.

There were no other significant events after the end of the fiscal year.

33 Remuneration of the Executive Board and the Supervisory Board

Total remuneration of the members of the Executive Board for performance of their duties at Carl Zeiss AG and its subsidiaries came to €13,657k for fiscal year 2018/19 (prior year: €10,609k). Of the total remuneration, €250k (prior year: €250k) is attributable to long-term benefits and €1,785k (prior year: €1,900k) to service cost for pension obligations. Current fixed and variable remuneration comes to €11,622k (prior year: €8,459k). The members of the Executive Board did not receive any additional remuneration because they either waived the remuneration for their activities on the supervisory board of subsidiaries or offset this against their Executive Board remuneration.

The total benefits paid to former members of the Executive Board and their surviving dependants amounted to €2,658k for fiscal year 2018/19 (prior year: €2,449k). Provisions totaling of €89,999k (prior year: €48,665k) were recognized for the benefit obligations to former members of the Executive Board or their surviving dependants.

The total remuneration of the members of the Supervisory Board of Carl Zeiss AG for their work came to €1,270k in fiscal year 2018/19 (prior year: €1,262k).

Oberkochen, 9 December 2019

The Executive Board of Carl Zeiss AG

Prof. Dr. Michael Kaschke

Dr. Karl Lamprecht

Dr. Matthias Metz

Dr. Ludwin Monz

Dr. Christian Müller

Dr. Jochen Peter

Dr. Markus Weber

List of Shareholdings of the Group

in accordance with Sec. 315e (1) in conjunction with Sec. 313 (2) German Commercial Code (HGB) 30 September 2019

Country	City	Name of entity		Share in capital acc. to Sec. 285 No. 11 HGB	Beneficial share in capital
				%	%
1. Fully consolidated subsidiaries					
Germany	Aalen	Carl Zeiss 3D Automation GmbH	1	100.0	100.0
Germany	Öhringen	Carl Zeiss Automated Inspection GmbH	1	100.0	100.0
Germany	Oberkochen	Carl Zeiss Beteiligungs-GmbH	1	100.0	100.0
Germany	Göttingen	Carl Zeiss CMP GmbH	1	100.0	100.0
Germany	Oberkochen	Carl Zeiss Energie GmbH	1	100.0	100.0
Germany	Oberkochen	Carl Zeiss Financial Services GmbH	1	100.0	100.0
Germany	Tholey	Carl Zeiss Fixture Systems GmbH		100.0	100.0
Germany	Oberkochen	Carl Zeiss Grundstücks GmbH & Co. KG	1	100.0	100.0
Germany	Oberkochen	Carl Zeiss Industrielle Messtechnik GmbH	1	100.0	100.0
Germany	Oberkochen	Carl Zeiss IQR GmbH	1	100.0	100.0
Germany	Jena	Carl Zeiss Jena GmbH	1	100.0	100.0
Germany	Jena	Carl Zeiss Jena Grundstücks GmbH & Co. KG	1	100.0	100.0
Germany	Jena	Carl Zeiss Meditec AG		59.1	59.1
Germany	Jena	Carl Zeiss Meditec Asset Management Verwaltungsgesellschaft mbH	1	100.0	59.1
Germany	Oberkochen	Carl Zeiss Meditec Vertriebsgesellschaft mbH	1	100.0	59.1
Germany	Jena	Carl Zeiss Microscopy GmbH	1	100.0	100.0
Germany	Neubeuern	Carl Zeiss Optotechnik GmbH	1	100.0	100.0
Germany	Peine	Carl Zeiss QEC GmbH		100.0	100.0
Germany	Schönkirchen	Carl Zeiss Schönkirchen GmbH	1	100.0	100.0
Germany	Oberkochen	Carl Zeiss SMT GmbH	1	100.0	75.1
Germany	Oberkochen	Carl Zeiss SMT Holding GmbH & Co. KG	1	75.1	75.1
Germany	Oberkochen	Carl Zeiss SMT Holding Management GmbH	1	100.0	100.0
Germany	Jena	Carl Zeiss Spectroscopy GmbH	1	100.0	100.0
Germany	Wetzlar	Carl Zeiss Sports Optics GmbH	1	100.0	100.0
Germany	Aalen	Carl Zeiss Vision GmbH		100.0	100.0
Germany	Aalen	Carl Zeiss Vision Grundstücks GmbH & Co. KG	1	100.0	100.0
Germany	Aalen	Carl Zeiss Vision Holding GmbH		100.0	100.0
Germany	Aalen	Carl Zeiss Vision International GmbH		100.0	100.0
Germany	Aalen	Carl Zeiss Vision Investment GmbH		100.0	100.0
Germany	Wetzlar	Carl Zeiss Wetzlar Grundstücks GmbH & Co. KG	1	100.0	100.0
Germany	Braunschweig	GOM GmbH		100.0	100.0
Germany	Frankfurt	Helaba Invest - CZFS Spezialfonds		100.0	100.0
Germany	Aalen	Marwitz & Hauser GmbH	1	100.0	100.0
Germany	Düsseldorf	OPTEC GmbH		51.0	100.0[3]
Germany	Kiel	Opton Feintechnik Kiel GmbH	1	100.0	100.0
Argentina	Buenos Aires	Carl Zeiss Vision Argentina S.A.		100.0	100.0
Australia	North Ryde	Carl Zeiss No. 2 Pty Ltd		100.0	100.0
Australia	North Ryde	Carl Zeiss Pty. Ltd.		100.0	100.0
Australia	Tonsley	Carl Zeiss Vision Australia Group Pty. Ltd.		100.0	100.0
Australia	Tonsley	Carl Zeiss Vision Australia Holdings Ltd.		100.0	100.0
Australia	Tonsley	Carl Zeiss Vision Australia Pty. Ltd.		100.0	100.0

Country	City	Name of entity	Share in capital acc. to Sec. 285 No. 11 HGB	Beneficial share in capital
			%	%
1. Fully consolidated subsidiaries				
Australia	Tonsley	Sola Optical Partners (Limited Partnership)	100.0	100.0
Belgium	Zaventem	Carl Zeiss N.V.-S.A.	100.0	100.0
Belgium	Zaventem	Carl Zeiss Vision Belgium NV	100.0	100.0
Brazil	São Paulo	Carl Zeiss do Brasil Ltda.	100.0	100.0
Brazil	Petrópolis	Carl Zeiss Vision Brasil Industria Optica Ltda.	100.0	100.0
British Virgin Islands	Road Town, Tortola	Carl Zeiss Vision China (BVI) Ltd.	100.0	100.0
China	Hong Kong	Carl Zeiss Far East Co., Ltd.	100.0	100.0
China	Changchun City	Carl Zeiss Fixture Systems (Changchun) Co., Ltd.	100.0	100.0
China	Shanghai	Carl Zeiss IMT (Shanghai) Co., Ltd.	100.0	100.0
China	Guangzhou	Carl Zeiss Meditec (Guangzhou) Ltd.	100.0	59.1
China	Shanghai	Carl Zeiss (Shanghai) Co., Ltd.	100.0	100.0
China	Suzhou-City	Carl Zeiss Suzhou Co., Ltd.	100.0	100.0
China	Guangzhou	Carl Zeiss Vision (China) Ltd.	100.0	100.0
China	Guangzhou	Carl Zeiss Vision (Guangzhou) Ltd.	100.0	100.0
China	Hong Kong	Carl Zeiss Vision Sunlens Asia Pacific Ltd.	100.0	100.0
China	Guangzhou	Carl Zeiss Vision Sunlens China Ltd.	100.0	100.0
China	Guangzhou	Carl Zeiss Vision Technical Services (Guangzhou) Ltd.	100.0	100.0
China	Guangzhou	Carl Zeiss Vision Technologies (Guangzhou) Ltd.	100.0	100.0
Denmark	Birkerød	Carl Zeiss A/S	100.0	100.0
Denmark	Birkerød	Carl Zeiss Vision Danmark A/S	100.0	100.0
Finland	Vantaa	Carl Zeiss Oy	100.0	100.0
France	La Rochelle, Perigny	Atlantic SAS	100.0	59.1
France	Marly-le-Roi	Carl Zeiss Meditec France S.A.S.	100.0	59.1
France	La Rochelle, Perigny	Carl Zeiss Meditec SAS	100.0	59.1
France	Marly-le-Roi	Carl Zeiss SAS	100.0	100.0
France	Sablé-sur-Sarthe	Carl Zeiss Services S.a.r.l.	100.0	100.0
France	Fougères	Carl Zeiss Vision France Holding S.A.S.	100.0	100.0
France	Fougères	Carl Zeiss Vision France S.A.S.	100.0	100.0
France	Paris	France Chirurgie Instrumentation SAS	100.0	59.1
UK	Cambourne	Carl Zeiss Ltd	100.0	100.0
UK	Cambourne	Carl Zeiss Microscopy Limited	100.0	100.0
UK	Birmingham	Carl Zeiss Vision UK Limited	100.0	100.0
UK	Livingston	HYALTECH Ltd.	100.0	59.1
UK	Birmingham	SILS Limited	100.0	100.0
India	Bangalore	Carl Zeiss India (Bangalore) Private Limited	100.0	100.0
Ireland	Wexford	Carl Zeiss Vision Ireland Ltd.	100.0	100.0
Ireland	Wexford	Sola Holdings Ireland Limited	100.0	100.0
Israel	Misgav	Carl Zeiss SMS Ltd.	100.0	75.1
Italy	Cassano Magnago, Varese	Bosello High Technology S.r.l.	70.0	100.0[3]
Italy	Milan	Carl Zeiss S.p.A.	100.0	100.0
Italy	Varese	Carl Zeiss Vision Italia S.p.A.	100.0	100.0
Japan	Tokyo	Carl Zeiss Co., Ltd.	100.0	100.0

Country	City	Name of entity	Share in capital acc. to Sec. 285 No. 11 HGB	Beneficial share in capital
			%	%
Japan	Tokyo	Carl Zeiss IMT Co., Ltd.	100.0	100.0
Japan	Tokyo	Carl Zeiss Meditec Co., Ltd.	100.0	79.2
Japan	Tokyo	Carl Zeiss Vision Japan Co., Ltd.	100.0	100.0
Canada	Toronto	Carl Zeiss Canada Ltd.	100.0	100.0
Canada	Toronto	Carl Zeiss Vision Canada Inc.	100.0	100.0
Kazakhstan	Almaty District	TOO Optec	100.0	100.0[3]
Colombia	Bogotá D.C.	Carl Zeiss Vision Colombia S.A.S.	100.0	100.0
Korea, South	Seoul	Carl Zeiss Co., Ltd.	100.0	100.0
Korea, South	Seoul	Carl Zeiss Vision Korea Co., Ltd.	100.0	100.0
Malaysia	Petaling Jaya	Carl Zeiss Sdn. Bhd.	100.0	100.0
Malaysia	Kuala Lumpur	Carl Zeiss Vision (Malaysia) Sdn. Bhd.	100.0	100.0
Mauritius	Quatre Bornes	FCI SUD Ltd.	100.0	59.1
Mexico	México D.F.	Carl Zeiss de México S.A. de C.V.	100.0	100.0
Mexico	Tijuana	Carl Zeiss Vision Manufactura de Mexico S. de R.L. de C.V.	100.0	100.0
Mexico	Naucalpan	Carl Zeiss Vision Mexico S. de R.L. de C.V.	100.0	100.0
New Zealand	Auckland	Carl Zeiss (N.Z.) Ltd.	100.0	100.0
Netherlands	Breda	Carl Zeiss B.V.	100.0	100.0
Netherlands	Breda	Carl Zeiss Vision Nederland B.V.	100.0	100.0
Norway	Oslo	Carl Zeiss AS	100.0	100.0
Austria	Vienna	Carl Zeiss GmbH	100.0	100.0
Austria	Graz	Carl Zeiss Industrielle Messtechnik Austria GmbH	100.0	100.0
Philippines	Taguig	Carl Zeiss Philippines Pte. Ltd.	100.0	100.0
Poland	Poznan	Carl Zeiss Shared Services Sp. z o.o.	100.0	100.0
Poland	Poznan	Carl Zeiss Sp. z o.o.	100.0	100.0
Portugal	Setúbal	Carl Zeiss Vision Portugal S.A.	100.0	100.0
Russia	Moscow	OOO Optec	100.0	100.0[3]
Sweden	Stockholm	Carl Zeiss AB	100.0	100.0
Sweden	Malmö	Carl Zeiss Vision AB	100.0	100.0
Switzerland	Feldbach	Carl Zeiss AG	100.0	100.0
Switzerland	Feldbach	Carl Zeiss Vision Swiss AG	100.0	100.0
Singapore	Singapore	Carl Zeiss Pte. Ltd.	100.0	100.0
Singapore	Singapore	Carl Zeiss Vision Singapore Pte. Ltd.	100.0	100.0
Slovakia	Bratislava	Carl Zeiss Slovakia, s.r.o.	100.0	100.0
Slovenia	Ljubljana	Carl Zeiss d.o.o.	100.0	100.0
Spain	Tres Cantos - Madrid	Carl Zeiss Iberia, S.L.	100.0	100.0
Spain	Tres Cantos - Madrid	Carl Zeiss Meditec Iberia SA	100.0	59.1
Spain	Tres Cantos - Madrid	Carl Zeiss Vision España, S.L.	100.0	100.0
South Africa	Randburg	Carl Zeiss (Pty.) Ltd.	100.0	100.0
South Africa	Randburg	Carl Zeiss Vision South Africa (Pty) Ltd.	100.0	100.0
Taiwan	Hsinchu City	Carl Zeiss Co., Ltd.	100.0	100.0
Thailand	Bangkok	Carl Zeiss Co. Ltd.	49.0[2]	49.0[2]
Czech Republic	Prague	Carl Zeiss spol. s r.o.	100.0	100.0
Turkey	Ankara	Carl Zeiss Meditec Medikal Cözümler Tic. ve San. A.S	100.0	59.1

Country	City	Name of entity	Share in capital acc. to Sec. 285 No. 11 HGB	Beneficial share in capital
			%	%
1. Fully consolidated subsidiaries				
Ukraine	Kiev	TOV Optec	100.0	100.0[3]
Hungary	Mátészalka	Carl Zeiss Sport Optikai Hungaria Kft.	100.0	100.0
Hungary	Mátészalka	Carl Zeiss Vision Hungary Optikai Kft.	100.0	100.0
USA	White Plains	Carl Zeiss Inc.	100.0	100.0
USA	Minneapolis	Carl Zeiss Industrial Metrology, LLC	100.0	100.0
USA	Reno	Carl Zeiss Meditec Cataract Technology, Inc.	100.0	59.1
USA	Temple	Carl Zeiss Meditec Digital Innovations, LLC	100.0	59.1
USA	Dublin	Carl Zeiss Meditec, Inc.	100.0	59.1
USA	Ontario	Carl Zeiss Meditec Production, LLC	100.0	59.1
USA	White Plains	Carl Zeiss Microscopy, LLC	100.0	100.0
USA	White Plains	Carl Zeiss SBE, LLC	100.0	100.0
USA	Peabody	Carl Zeiss SMT, Inc.	100.0	75.1
USA	San Diego	Carl Zeiss Vision Holdings Ltd.	100.0	100.0
USA	San Diego	Carl Zeiss Vision Inc.	100.0	100.0
USA	Pleasanton	Carl Zeiss X-ray Microscopy, Inc.	100.0	100.0
USA	Pembroke	FCI Ophthalmics Inc.	100.0	59.1
USA	Lafayette	Ophthalmic Laser Engines, LLC	52.0	30.8
Venezuela	San Diego	Carl Zeiss Vision Venezuela Industria Optica C.A.	100.0	100.0
United Arab Emirates	Dubai	Carl Zeiss Vision MENA FZE	100.0	100.0
Vietnam	Ho Chi Minh City	Carl Zeiss Vietnam Company Limited	100.0	100.0
Belarus	Minsk	OOO Optec	100.0	100.0[3]
2. Non-consolidated subsidiaries				
Germany	Aalen	Carl Zeiss EyeTec GmbH	100.0	100.0
Germany	Oberkochen	Carl Zeiss Grundstücks-Verwaltungs GmbH	100.0	100.0
Germany	Dresden	Carl Zeiss Innovationszentrum für Messtechnik GmbH	100.0	100.0
Germany	Ulm	Carl Zeiss MES Solutions GmbH	100.0	100.0
Germany	Wangen	Carl Zeiss Optical Components GmbH	100.0	100.0
Germany	Cologne	Carl Zeiss Retrofit und Service GmbH	100.0	100.0
Germany	Oberkochen	Carl Zeiss Sechste Vorratsgesellschaft mbH	100.0	100.0
Germany	Oberkochen	Carl Zeiss Siebte Vorratsgesellschaft mbH	100.0	100.0
Germany	Oberkochen	Carl Zeiss Venture Beteiligungsgesellschaft mbH	100.0	100.0
Germany	Aalen	Carl Zeiss Vision Erste Vorratsgesellschaft mbH	100.0	100.0
Germany	Oberkochen	Gusto Gourmet GmbH	100.0	100.0
Germany	Essingen	Holometric Technologies Forschungs- und Entwicklungs-GmbH	100.0	100.0
Germany	Berlin	MuLight Technology GmbH	100.0	100.0
Brazil	Rio de Janeiro	Lentrix Industria e Comercio de Produtos Opticos Ltda.	51.0	51.0
China	Shanghai	GOM Optical Measuring Techniques (Shanghai) Co., Ltd.	100.0	100.0
Denmark	Birkerød	Brock & Michelsen Invest A/S	100.0	100.0
France	Guibeville	GOM FRANCE SAS	65.9	52.7
UK	Coventry	GOM UK LIMITED	98.9	79.1

Country	City	Name of entity	Share in capital acc. to Sec. 285 No. 11 HGB	Beneficial share in capital
			%	%
Italy	Buccinasco	GOM ITALIA S.R.L.	95.0	95.0
Croatia	Zagreb	Carl Zeiss d.o.o.	100.0	100.0
Poland	Slupsk	OptiMedi Sp. z o.o.	91.1	58.3
Poland	Slupsk	OptiNav Sp. z o.o.	64.0	64.0
Romania	Bucharest	Carl Zeiss Instruments S.R.L.	100.0	100.0
Romania	Timisoara	Carl Zeiss MES Solutions S.R.L.	99.9	99.9
Switzerland	Widen	GOM International AG	60.0	60.0
Zimbabwe	Harare	Carl Zeiss (Pvt.) Ltd. (Zimbabwe)	100.0	100.0
Turkey	Istanbul	Carl Zeiss Teknoloji Cözümleri Ticaret Limited Sirketi	100.0	100.0
Hungary	Budapest	Carl Zeiss Technika Kft.	100.0	100.0
USA	San Diego	American Optical IP Corporation	100.0	100.0
USA	Warsaw	Bosello High Technology USA LLC	100.0	100.0[3]
USA	Novi	Carl Zeiss Metrology Services Inc.	80.0	80.0
USA	Charlotte	GOM Americas Inc.	100.0	100.0
Belarus	Minsk	JV ZEISS-BelOMO OOO	60.0	60.0

3. Associates and joint ventures not accounted for using the equity method

Germany	Braunschweig	A3DS GmbH	30.0	30.0
Germany	Jena	JENAER BILDUNGSZENTRUM gGmbH SCHOTT CARL ZEISS JENOPTIK	33.3	33.3
Germany	Eggenstein-Leopoldshafen	Nanoscribe GmbH	39.9	39.9
Germany	Munich	Saxonia Systems AG	25.0	25.0
Germany	Mainz	SCHOTT-ZEISS ASSEKURANZKONTOR GmbH	50.0	50.0
Germany	Holm-Seppensen	X-Ray Solutions GmbH	49.0	49.0[3]
Denmark	Nørresundby	3D-CT A/S	49.0	49.0
Italy	Samarate, Varese	S.E.A.I. S.r.l.	25.0	25.0[3]
Canada	Ottawa	Fibics Incorporated	25.1	25.1
Norway	Lier	Visitech AS	25.0	25.0
USA	Bozeman	Bridger Photonics, Inc.	34.2	34.2
USA	White Plains	tooz technologies Inc.	50.0	50.0

[1] In accordance with Sec. 264 (3) HGB or Sec. 264b HGB, these entities are exempted from the duty to publish their financial statements.
[2] Majority of the voting rights
[3] Due to reciprocal put and call options

Independent auditor's report

Reproduction of the auditor's report

We issued the following auditor's report on the consolidated financial statements and the group management report:

"Independent auditor's report

To Carl Zeiss AG

Opinions
We have audited the consolidated financial statements of Carl Zeiss AG, Oberkochen (Germany), and its subsidiaries (the Group), which comprise the consolidated income statement, and the consolidated statement of comprehensive income for the fiscal year from 1 October 2018 to 30 September 2019, consolidated statement of financial position as of 30 September 2019, consolidated statement of changes in equity and consolidated statement of cash flows for the fiscal year from 1 October 2018 to 30 September 2019, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of Carl Zeiss AG for the fiscal year from 1 October 2018 to 30 September 2019.

In our opinion, on the basis of the knowledge obtained in the audit,

» the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) German Commercial Code (HGB) and, in compliance with these requirements, give a true and fair view of the net assets and financial position of the Group as of 30 September 2019, and of its results of operations for the fiscal year from 1 October 2018 to 30 September 2019, and
» the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to Sec. 322 (3) Sentence 1 German Commercial Code (HGB), we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions
We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 German Commercial Code (HGB) and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the Group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Other information
The Supervisory Board is responsible for the Report of the Supervisory Board. In all other respects, the executive directors are responsible for the other information. The other information comprises the following components designated for the annual report, of which we obtained a version before issuing our auditor's report: Seeing beyond, Financial Highlights, Executive Board of Carl Zeiss AG, Foreword by the Executive Board, Shaping the Future with Solutions, From Inspiration to Application, Highlights from Fiscal Year 2018/19, Corporate Responsibility, Worldwide Representation, The Carl Zeiss Foundation, Report by the Supervisory Board, Supervisory Board of Carl Zeiss AG and Corporate Governance.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

» is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or

» otherwise appears to be materially misstated.

Responsibilities of the executive directors and the Supervisory Board for the consolidated financial statements and the group management report
The executive directors are responsible for the preparation of consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German law pursuant to Sec. 315e (1) German Commercial Code (HGB), for the preparation of consolidated financial statements that give a true and fair view of the net assets, financial position and results of operations of the Group in accordance with these requirements. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 German Commercial Code (HGB) and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. 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 consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

» Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, 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 opinions. 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 of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report 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 these systems

» Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures

» Conclude on the appropriateness of the executive directors' 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 ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. 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 to cease to be able to continue as a going concern.

» Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) German Commercial Code (HGB).

» Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.

» Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.

» Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit."

Stuttgart, 9 December 2019

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Marbler	Dr. Jungblut
Wirtschaftsprüfer	Wirtschaftsprüfer
[German Public Auditor]	[German Public Auditor]

Legal Information/Disclaimer

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Disclaimer
This report contains certain forward-looking statements concerning the development of the ZEISS Group. At the present time, ZEISS assumes that these forward-looking statements are realistic. However, such forward-looking statements are based both on assumptions and estimates that are subject to risks and uncertainties, which may lead to the actual results differing significantly from the expected results. ZEISS therefore assumes no liability for such a deviation. There are no plans to update the forward-looking statements for events that occur after the end of the reporting period.

Apparent addition discrepancies may arise throughout this annual report due to mathematical rounding.

This is a translation of the original German-language Annual Report of the ZEISS Group. The ZEISS Group shall not assume any liability for the correctness of this translation. If the texts differ, the German report shall take precedence.

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