Delivering world-class materials solutions

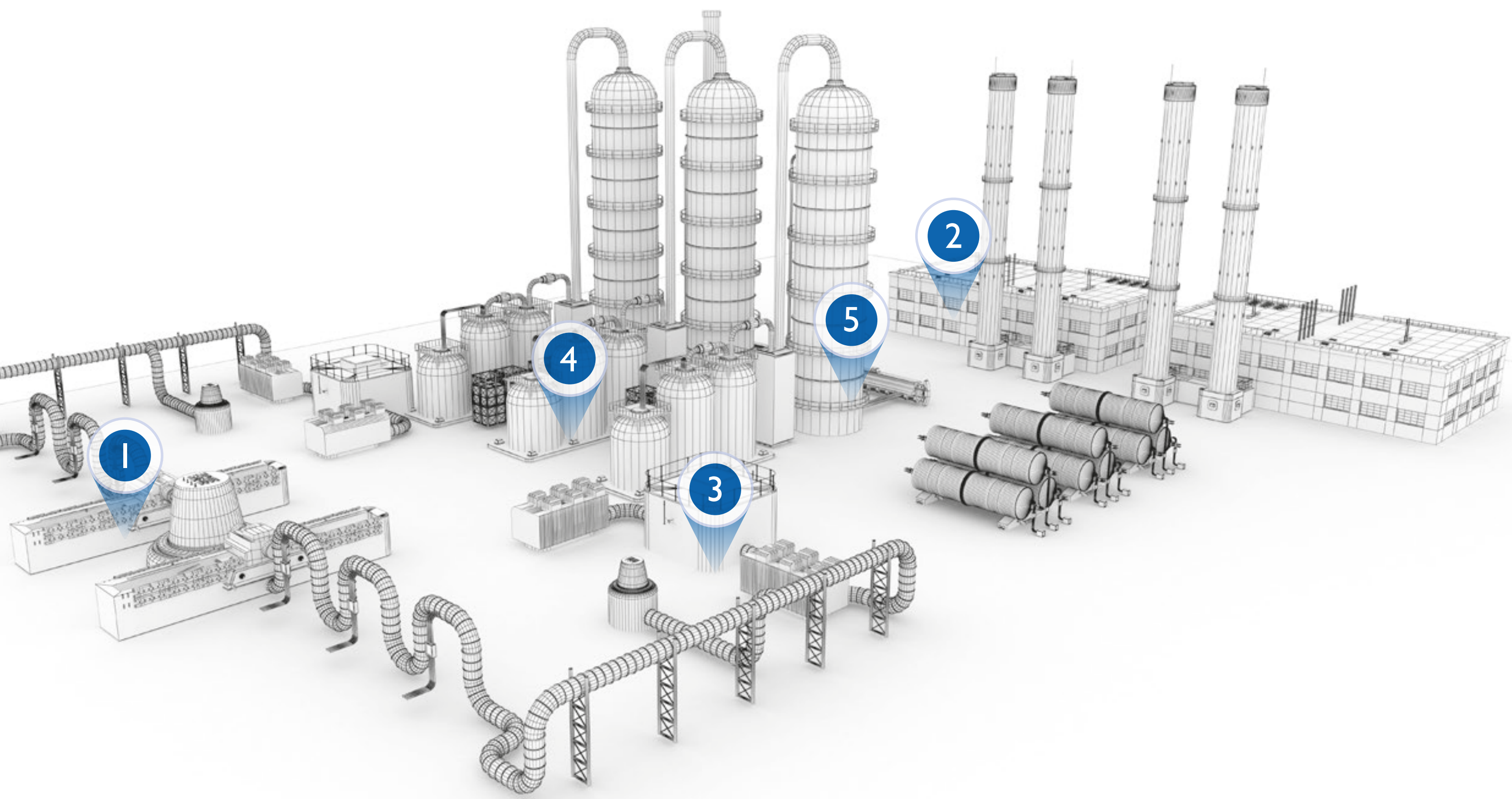
Morgan Advanced Materials

Annual Report 2017

World-class problem solving

Morgan Advanced Materials is a global engineering company. We apply world-class materials science and manufacturing expertise to solve technical challenges that our customers face everyday.

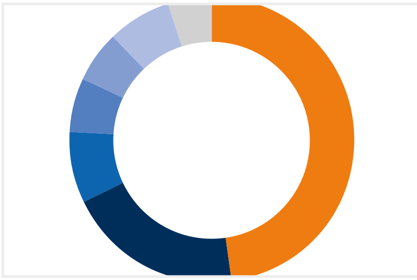
We work in the electronics, energy, healthcare, industrial, petrochemical, security and transport markets, forming close collaborative relationships with our customers. Morgan is a global leader in materials science and application engineering.



Chief Executive Officer's review Page 10

Group business model Page 12

Our strategy in action Page 17



Financial Statements Page 100

Industrial

1 Thermal Ceramics

Thermal ceramics to protect critical components

Our high temperature fibre, refractory and microporous insulation provide thermal management in manufacturing.

2 Molten Metal Systems

Crucibles for casting of industrial components

We produce crucibles which are used in manufacturing large components in a variety of industries.

3 Electrical Carbon

Wheel motors for mining

We are the leading manufacturer of carbon brushes for mining, used in applications such as wheel motors, hoists or conveyors.

4 Seals and Bearings

Seals for industrial applications

Our carbon, graphite and silicon carbide seals possess superior wear characteristics, making them ideal for industrial use.

5 Technical Ceramics

Laser reflectors

We produce laser reflector tubes, in large and complex dimensions, which are used in cutting and welding.

Overview

Strategic Report

Governance

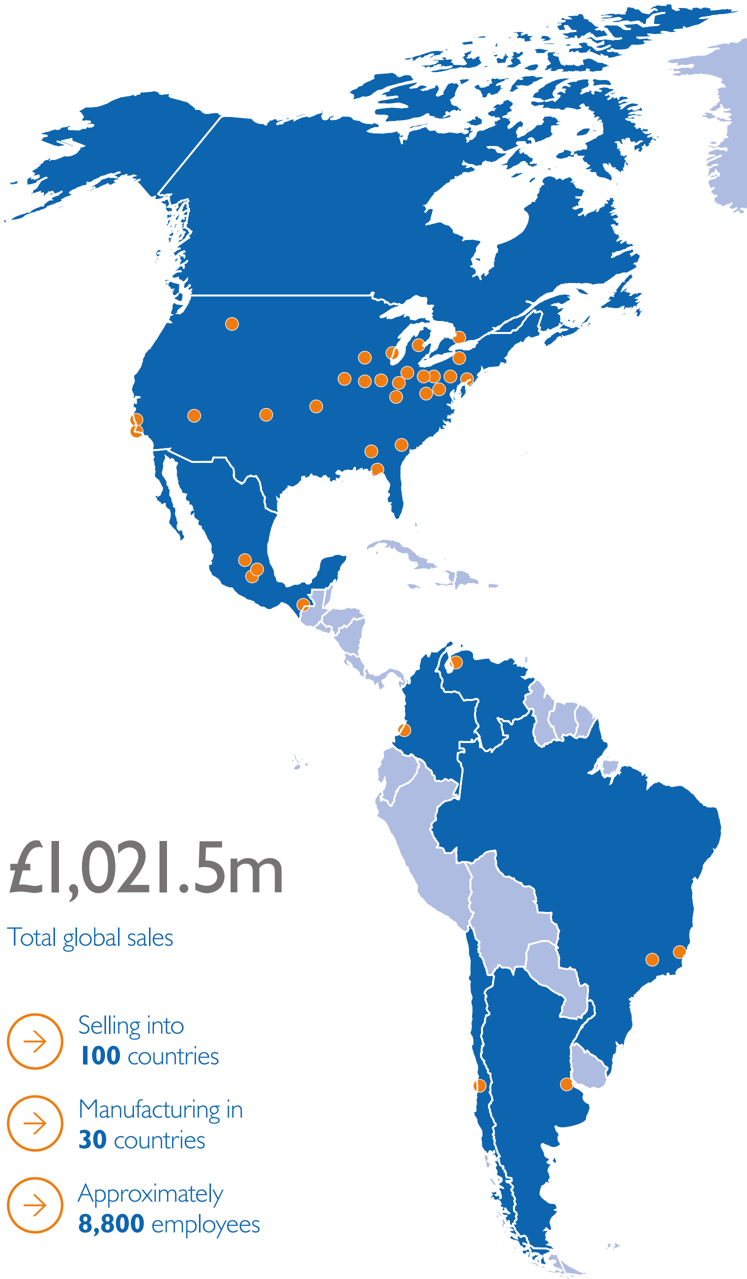
Financial Statements

About us

Our engineered solutions are developed to exacting specifications and deliver ever greater performance through materials and production process innovation.

The Group's highly experienced scientists and application engineers are constantly engaged with our customers to find new solutions for complex and technologically demanding problems.

This work is underpinned by a passion to develop the next generation of skilled materials scientists and application engineers, coupled with a commitment to the environment, to health and safety, and operating to high ethical standards.



£1,021.5m

Total global sales

→ Selling into **100** countries

→ Manufacturing in **30** countries

→ Approximately **8,800** employees

Our structure

Thermal Products Division
- Thermal Ceramics
- Molten Metal Systems

Carbon and Technical Ceramics Division
- Electrical Carbon
- Seals and Bearings
- Technical Ceramics

Composites and Defence Systems

Our strengths

- Leading technology and materials science capability and process know-how
- Application engineering
- Customer focus, reputation and brand
- Strong market positions
- People and culture
- Selling into 100 countries
- Manufacturing in 30 countries
- Approximately 8,800 employees

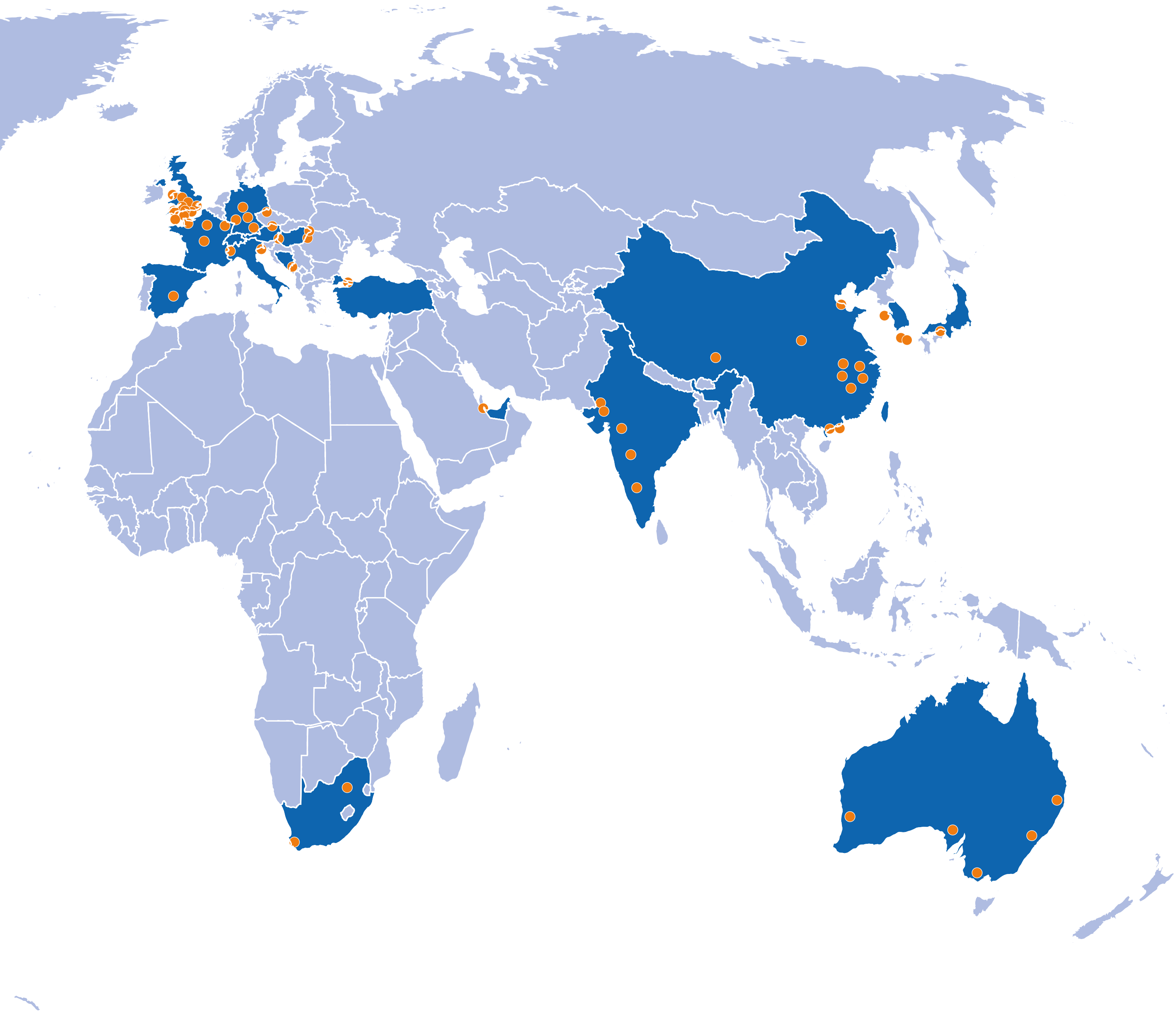
Our products

Morgan Advanced Materials manufactures an extensive range of products, satisfying a variety of applications across numerous end-markets.

The Group's products sit in two global Divisions and six global business units which Morgan operates:

Thermal Products Division, organised in two global business units:

- **Thermal Ceramics:** 42% of Group revenue in 2017 – insulating fibre, board, paper, bricks and monolithics – an extensive range of high-temperature insulation products used to reduce energy consumption in industrial processes and provide fire protection.
- **Molten Metal Systems:** 5% of Group revenue in 2017 – crucibles for metals processing – a comprehensive range of crucibles for optimum performance in non-ferrous metal and alloy melting in foundries, die-casters and metal processing facilities.



Carbon and Technical Ceramics Division, organised into three global business units:

- **Electrical Carbon:** 15% of Group revenue in 2017 – electrical carbon and graphite products – primarily used for transferring electrical energy in motor and generator applications within the mining, transportation and power generation markets, and in semiconductor processing.
- **Seals and Bearings:** 11% of Group revenue in 2017 – carbon, graphite and silicon carbide components which deliver improved performance, reliability and extended life to pumps and similar equipment used in petrochemical, automotive, aerospace and water applications.
- **Technical Ceramics:** 25% of Group revenue in 2017 – ceramic cores for investment casting – consumable products used to create intricate internal cooling cavities in aero-engine and industrial gas turbine blades; structural ceramics – advanced ceramic components which demonstrate exceptional properties in harsh environments.

Composites and Defence Systems:

- 2% of Group revenue in 2017 – ballistic protection in the form of personal body armour or vehicle armour, utilising the Group's advanced ceramics for lightweight armour systems.

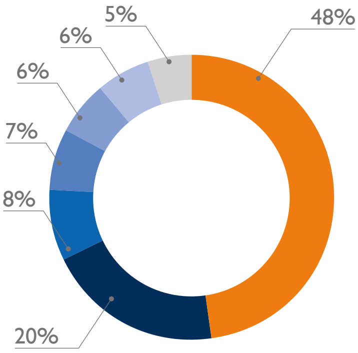
In addition to these principal product ranges, Morgan also offers application-specific products for each of its target markets. These are products designed and manufactured to specific customer requirements using a wide range of thermal ceramics, structural ceramics and precious metals.

About us

Our markets

The Group operates in a number of market sectors. Examples of the products Morgan supplies, and its customer collaborations, are provided on the following pages.

% of revenue 2017



	Industrial
	Transportation
	Petrochemical
	Security and defence
	Energy
	Electronics
	Healthcare

Industrial

48%

of 2017 revenue

Morgan Advanced Materials designs and manufactures products for use in a broad range of challenging process and manufacturing environments.

The Group's advanced materials offer a wide range of performance characteristics including superior insulating properties, dimensional stability, strength and stiffness. Components which are highly resistant to chemical and physical wear, corrosion and extreme temperatures support optimised process efficiency and increase productivity. These attributes are helping to reduce industrial waste, improve safety and lower environmental impact.

For example, Morgan's Molten Metal Systems global business unit has focused on reducing aluminium contamination in molten metal processing. The development of two specialist crucible coatings, designed to act as a diffusion barrier during the melting process, is helping aluminium casters to improve quality of output and reduce rejections by avoiding metal contamination in the melting and holding process.

Morgan has also continued to invest in research and development (R&D) to support its role in the industrial market, with construction work underway at our new Carbon Science Centre of Excellence (CoE) at Penn State University, Pennsylvania, USA. The collaboration between the university and Morgan aims to drive innovation in the field of carbon science for a range of sectors and applications. The findings generated by the CoE will support Morgan in the delivery of world-class materials science solutions to meet the challenges of customers worldwide, safely and efficiently.

Transportation

20%

of 2017 revenue

Morgan Advanced Materials manufactures high-performance products for aerospace, automotive, marine and rail applications.

These applications require high-performance components and sub-assemblies manufactured to exacting standards.

The Group combines its materials science and manufacturing capabilities to offer consistent and reliable products in flexible production quantities. For example, Morgan's carbon brushes and collectors are used extensively in trains, similarly, high-temperature fibre products are widely used for emission control in a wide variety of vehicles, specially engineered to customer requirements.

In the aerospace sector, Morgan continues to expand its activity and build on the success of the Technical Ceramics range of specially-engineered ceramic core products. An example, the recent introduction of two new materials to the market, which can generate exceptionally fine cross-sections in aerofoil and turbine blade casting, while offering enhanced surface finish. The materials can produce cores with a low profile thickness without compromising stability or rigidity during the casting processes. These technology advantages have been shown to increase casting yields when compared to alternative materials on the market.

Petrochemical

8%

of 2017 revenue

Morgan Advanced Materials makes critical components for challenging applications in the global petrochemical industry.

The petrochemical industry operates in demanding environments, creating a requirement for more durable, resistant and efficient materials. Morgan's components are used globally in critical applications to meet on- and offshore exploration challenges, and support drilling and downstream processing, thanks to their resistance to chemical and physical wear, corrosion, and extreme temperatures.

Morgan supplies carbon graphite, zirconia materials and silicon carbide into a range of critical components such as mechanical seal faces, pump bearings and specialist valves.

About us

Our markets continued

Security and defence

7%

of 2017 revenue

Morgan Advanced Materials supplies precision-engineered materials, components and assemblies to meet the exacting standards of the international security and defence markets.

The security and defence industries are constantly balancing the need for greater protection with the requirement for more lightweight materials, from platform applications to personnel protection.

Morgan combines its manufacturing capability and materials technology to produce solutions that deliver real performance benefits for security and defence applications, in the most demanding environments. The Group has considerable experience in the area of explosive ordnance disposal, where comfort and freedom of movement need to combine with optimum protection for the user.

Energy

6%

of 2017 revenue

Morgan Advanced Materials develops products for power generation from renewable and traditional sources and insulation materials for heat management.

Morgan's advanced thermal insulation is used to insulate heat recovery steam generators in power and industrial plants. Morgan's carbon brushes offer world-leading performance in power generation applications. Morgan has developed new carbon material grades for wind generation applications that extend life and reduce service costs.

Morgan's partnership with AETC Ltd, part of PCC Airfoils LLC, is a good example of the continued support for the gas turbine industry. This year marked 20 years of professional collaboration between Morgan and AETC Ltd, during which we have provided highly stable ceramic cores to enable the manufacture of blades and vanes which are resistant to oxidation, corrosion and wear, and provide longevity during operation. Our focus on meeting customer requirements and demands in the harshest environments is key to the success of this collaboration.

Electronics

6%

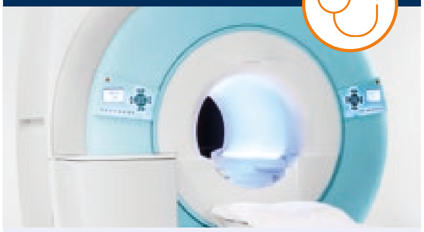
of 2017 revenue

Morgan Advanced Materials makes components that help the electronics industry in its drive towards higher performance and reliability in smaller, lighter, more robust products.

Electronics manufacturers are under constant pressure to meet competing demands on component size, functionality and cost. Morgan engineers high-purity, high-specification components which are used globally in the fabrication of semiconductor and electronic products.

Morgan's research and development teams work closely with customers to design and manufacture intricate components with specific electrical and thermal properties within restricted and challenging size constraints. Morgan's ceramic metallisation processes have played a major role in the commercialisation of modern communication, signalling and control technologies, including ultra-high-frequency signal transmission.

Healthcare



5%

of 2017 revenue

Morgan Advanced Materials produces components used in medical monitoring and diagnostic instrumentation and tools for treatment and surgery.

Medical engineering requires the highest standards of precision, reliability and performance, which is why many medical original equipment manufacturers (OEMs) choose materials from Morgan to help improve the performance of their equipment.

Our experienced team of materials scientists have a deep understanding of the uniquely demanding environment in which equipment for the global medical market is developed. This allows the Group to produce a broad variety of components for use in medical monitoring and instrumentation as well as in tools for treatment and surgery. By combining materials innovation with high-quality manufacturing capabilities, Morgan produces parts which are optimised to meet precise and complex physical and chemical specifications.

Morgan's deep understanding of ceramic material properties, together with expertise in braze alloy design, allows the Group to produce high-density, highly reliable feed-throughs for a range of medical applications, including cochlear implants and neuro-stimulation.

To support the development of the metallised components healthcare market, Morgan has opened the Metals and Joining CoE in Hayward, California, USA. The CoE is focused on the development of new materials for challenging applications, driven by demand for joining solutions which can deliver higher performance, a lower cost of ownership and more efficient operation. One landmark initiative currently underway within Morgan's Metals and Joining CoE is making traditionally brittle braze alloys available in a flexible wire form. In doing so, this will provide a new tool to help reduce waste and cost, while simultaneously resulting in a higher quality join and improved application performance.

Financial and operational highlights

Financial

Headline performance

Revenue

£1,021.5m

2017	1,021.5
2016	989.2
2015	911.8

Group headline operating profit[1]

£119.7m

2017	119.7
2016	116.9
2015	106

Statutory basis

Operating profit

£158.1m

2017	158.1
2016	107.3
2015	82.9

Profit before tax

£135.8m

2017	135.8
2016	87.9
2015	59.0

Headline EPS[1]

22.5p

2017	22.5
2016	22.7
2015	20.8

Total dividend per share

11.0p

2017	11.0
2016	11.0
2015	11.0

Basic EPS

37.8p

2017	37.8
2016	18.4
2015	11.9

Health and safety

Headline performance

Lost-time accident frequency[2]
(per 100,000 hours worked)

0.39

2017	0.39
2016	0.27
2015	0.45

1. Throughout the Annual Report, including the Strategic Report, adjusted measures are used to describe the Group's financial performance. These adjusted measures are not recognised under IFRS or other generally accepted accounting principles (GAAP). The Executive Committee and the Board manage and assess the performance of the business on these measures and believe that they are more representative of ongoing trading, facilitate year-on-year comparisons, and hence provide additional useful information to shareholders.

   Throughout this Report these non-GAAP measures are clearly identified by an asterisk (*) where they appear in text, and by a footnote where they appear in tables and charts. Definitions and reconciliations of these non-GAAP measures to the relevant GAAP measures can be found in the Group Financial Review on pages 41 to 44.
2. Lost-time accident frequency has been subject to assurance by ERM Certification and Verification Services. See page 50 for further details.

Chairman’s statement

Financial performance showed progress with a return to organic growth. 2018 will continue to reflect the focus on strategic delivery underpinned by a focus on safety performance.

Andrew Shilston
Chairman

2017 was the second year of the three-year plan to reinvigorate the Company through investment in products, people and better operational processes. It was pleasing to see that financial performance showed some modest progress, particularly as the global economy started to show some signs of growth in the latter part of the year. On an organic constant-currency basis*, revenues increased by 1.4%, and the balance sheet was stronger at the end of the year due to better operational management and disposals with net debt* reducing to £181.3 million from £242.5 million in 2016. Despite disposals of mature assets with good margins the operating profit margin was stable with the negative effects of those disposals offset by operating efficiencies and higher revenues. The proposed dividend is unchanged at 11.0p per share.

The next year will see further progress in the important areas of achieving greater effectiveness in winning new business through training and key new hires, improving Leadership behaviours, and making the support functions as efficient as possible. Together with the reinvestment in our Centres of Excellence the Board believes the Group has the capability to generate organic growth in the future by concentrating on areas of the markets with needs particularly attuned to our capabilities.

In addition to growing the business, the right behaviours must be observed and all employees should be sure of operating in a safe environment. It was very disappointing to see a road accident in the USA which injured 19 of our employees, some of them seriously. Aside from this the accident rates in some of our other businesses did not improve. Performance objectives of top management continue to place emphasis on causing positive change in this area.

There has been a further change in the Board during the year with Rob Rowley stepping down as Non-executive Director and Chairman of the Audit Committee. I am very grateful for Rob’s interest in, and support for the Company during his tenure. I therefore welcome Jane Aikman to the Board as a Non-executive Director and Chairman of the Audit Committee. Jane is a highly experienced plc Finance Director from various businesses, and was Chairman of the Audit Committee of Halma plc from 2009 to 2016.

Andrew Shilston
Chairman

Chief Executive Officer's review

We continue to make good progress with the implementation of our strategy and we have delivered a good set of results, growing the business organically and driving efficiencies to fund £8.5 million of incremental investment in R&D, sales and wider business infrastructure.

Safe and ethical working is the top priority for the Group. 2017 was a disappointing year from a safety perspective. Our lost time accident rate (accidents per 100,000 hours worked) increased from 0.27 to 0.39 in the year. In part this was the result of a serious road traffic accident in the USA when a minibus carrying members of our Thermal Products operations team to our plant was hit by another vehicle. Nineteen employees were injured in this incident. However, we have also seen increased accident rates in several businesses beyond this one serious accident, and we have further work to do to improve. Our 'thinkSAFE' programme, launched in 2015, is the vehicle for us to do this and we will be increasing the breadth and intensity of activity on safety further in 2018.

We are now two years into the initial three-year implementation phase of our strategy. We laid out six execution priorities for the first three years and I am pleased with the progress we have made against those during the year. It will take several years to see the full benefits from the changes and investments that we are making, but we have made a good start and are starting to see some early successes across the business. The foundation for this has been our operational improvements. These accelerated during the year, and consequently we have been able to invest more in the business during the year in technology development, sales and increasing functional capability and depth.

2018 is the final year of our initial implementation phase and we will be investing a further £8 million in our capabilities, largely in technology and sales, funded through further operational improvements. These are important investments to build the long-term health of the Group and will position us for more resilient financial performance and faster growth in the years to come.

Group results

The trading conditions were difficult coming into the year with improvements evident in sentiment, but limited progress in our markets. Conditions have improved through the year with improved order momentum in the major industrial geographies from the second quarter onwards. With the better market conditions, and the impact of strategic and structural changes, the Group has performed well:

- Group revenue for 2017 was £1,021.5 million, 3.3% above 2016 at reported exchange rates. On an organic constant currency basis* Group revenue was higher by 1.4%.
- The 2017 Group headline operating profit* margin was 11.7% (2016: 11.8%) with the impacts of divestments largely offset by operational efficiencies and the benefit of higher revenue.
- Group headline earnings per share* was 22.5 pence (2016: 22.7 pence).
- Capital expenditure was £34.4 million (2016: £39.5 million). The Group has continued its investment in additional capability and capacity to support future growth.
- Operating cash generation* was good, with a cash flow from operations of £129.5 million, excluding the one-off payment to the US pensions scheme, (2016: £128.3 million). Net debt* at the year end was £181.3 million (2016: £242.5 million).
- The net debt* to EBITDA* ratio at the year-end improved to 1.2x (2016: 1.6x), following the disposal of two businesses. The Group remains well within its banking covenants and has good headroom and balance sheet capacity for appropriate future investment.
- On a statutory reporting basis operating profit improved to £158.1 million (2016: £107.3 million) and profit before tax improved to £135.8 million (2016: £87.9 million), both of these benefited from year-on-year movements in exchange rates and specific adjusting items of £45.7 million (2016: £(1.7) million charge, 2015: £(16.0) million charge). See pages 30 to 39 for further details.

Group strategy

Our long-term strategy is to build a Group with distinctive capabilities and performance in three areas:

- materials science capability and technology.
- application engineering capability.
- customer and end-market focus.

We have strengths in these areas today, and developing these capabilities further will be our focus in the coming years. Through the application of our core skills in these areas we will add value as a Group.

We will apply these skills in markets that are growing and where we can operate at scale, on a global basis. We will apply these skills to solve difficult materials-based problems for our customers, ethically and safely and where they value our differentiated solutions. This set of capabilities provides a resilient and distinctive source of differentiation and is an enduring strategic goal for the Group.

To reach this goal we need to develop our capabilities further and address performance gaps in the business. In February 2016 we set six execution priorities that we are pursuing through to the end of 2018 to strengthen the Group and deliver resilient financial performance and faster growth:

1. Move to a global business structure.

We completed the move to a global business structure in March 2016. The change in structure has improved global co-ordination across the Group and has sharpened accountability within each of our global business units. This is an important change to enable the wider changes we need to make and we completed this without any loss of business momentum.

2. Improve technical leadership.

Our objective is to strengthen our technical teams and increase our investment in research and development to around 4% of sales (from 2.8% of sales in 2015) over the next two to three years.

We have increased our investment in technology development by £5.1 million in 2017, to £34.3 million, representing 3.4% of sales. We have expanded the technical teams in our new Carbon Science Centre of Excellence and in our new Metals and Joining Centre of Excellence. Further recruitment is underway in both places to expand the teams during 2018. We have also added technical resources to our Structural Ceramics Centre of Excellence to develop new products and processes for the structural ceramics business. It typically takes a number of years for these new developments to come to market, but in the case of our Metals and Joining Centre of Excellence, we have been able to accelerate new development of a new cored-wire alloy and product samples were in trials with customers by the end of the year. These are vital investments to enhance the future differentiation and growth of the business and we are planning to invest a further £5 million in technical resources and technology development in our Centres of Excellence and across the business in 2018.

3. Improve operational execution.

Our objective is to strengthen our operational capabilities, reduce operational costs to fund reinvestment in the business, and improve delivery and quality performance.

We made very good progress with our operational improvements in 2017 with a net £8.5 million of savings generated to fund reinvestment in the business in the year (against our target of £6 million). These were generated from a wide range of improvement projects in every business including larger lean projects looking at end-to-end waste elimination, smaller scale continuous improvement projects, procurement projects and further use of automation. We made a number of changes to strengthen our operational teams and continuous improvement capabilities during the year and we are well positioned to deliver the further £8 million improvements we are targeting in 2018.

4. Drive sales effectiveness and market focus.

Our objective is to strengthen our sales capability, and increase the intensity of effort with new customers and in new markets.

We carried out five pilot projects to test new techniques and tools and to build our understanding of the best approaches for us to use across the Group. In our Thermal business in China, and in Electrical Carbon in North America, we assessed the segmentation of our customers and alignment of sales resources to customers, the sales process and the sales management tools we should use. In our Thermal automotive business we developed a new strategy for the market using new market assessment tools and set new product and market priorities and targets. In our Thermal business in Europe we deployed new segmentation and pricing tools and developed a standard set of approaches for use across the Group. Finally, in our European Seals and Bearings business we developed a new sales structure with revised key account management and sales responsibilities to shift the way that business goes to market.

Through these pilots we delivered significant improvements in local capabilities and approaches, and we also developed our understanding of the tools and techniques we should apply across the Group. We will continue with that deployment during 2018.

We also completed the design of our framework for sales incentive plans and prepared for the deployment of new sales incentives to four different sales teams in the first quarter of 2018.

We will test these new approaches and make adjustments before deploying across the key sales teams during 2018 and early 2019.

5. Increase investment in people management and development.

We are aiming to strengthen our leadership capability and deepen functional capabilities across the business, including in sales and engineering.

We launched our new Leadership behaviours to our senior leaders during the year. These are now built into our performance management process and during 2018, our leaders will be measured both on what they achieve and how they achieve it to ensure we drive the behaviours we need to support the delivery of our strategy. In addition to the work on sales incentives, we have also made a range of changes to incentive schemes for the wider leadership population to provide a clearer line of sight from the performance of the individual and the impact on their compensation. As part of this we have introduced greater balance between short-term (in-year) and long-term (multi-year) incentives. Finally, we have strengthened our leadership population, in particular with the introduction of more capability in finance, HR, operations and EHS functions.

6. Simplify the business.

We have completed two divestments which have materially simplified the Electrical Carbon and Technical Ceramics global business units. Through these divestments we have exited businesses where we were sub-scale and where there was limited synergy with the remainder of the Group. We have sharpened the focus on the core business and reduced overhead costs. We received proceeds of £79.5 million from the sales and have used that to reduce our net debt* position, creating funds for reinvestment in the business in due course.

Looking forward

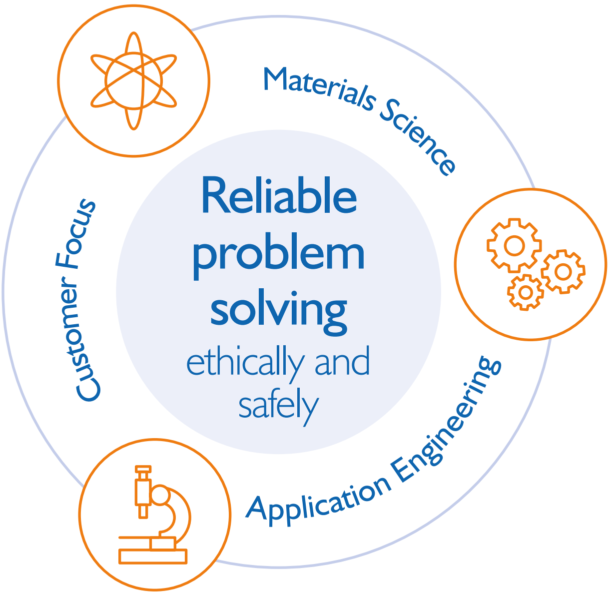
As we enter 2018, global markets are generally in good health with positive sentiment and growth expected in most large industrial geographies. We expect the business to grow at closer to our market growth rates in 2018. During 2018, we will be investing further in the long-term health of the business, and we will be investing selectively in capacity to support growth where we are capacity constrained and can see attractive opportunities to invest.

Finally, I would like to thank our employees for their hard work and support during 2017.

Pete Raby
Chief Executive Officer

Our business model

Group strategy



Our strategy is to build distinctive capabilities in materials science, in application engineering and in customer focus.

What we do: the Company is a world-leader in advanced materials science and the engineering of ceramics, carbon and composites. We operate in a series of well-defined markets where our applications expertise offers our customers a valuable differentiator, engineering high-specification materials, components and sub-assembly parts that solve their challenging technical problems.

Our markets are: Industrial, Transportation, Petrochemical, Security and defence, Energy, Electronics, and Healthcare. Many of our products are required to perform critical duties in harsh or demanding environments.

Our principal product ranges are: insulating fibres, electrical carbon systems, seals and bearings, ceramic cores, crucibles for metals processing and high technology composites. We also develop specialist materials and make many application-specific products to customer requirements.

Further information on our markets and principal product ranges can be found in 'About us' on pages 2 to 7.

Execution priorities

1. Move to a global business structure
2. Improve technical leadership
3. Improve operational execution
4. Drive sales effectiveness and market focus
5. Increase investment in people management and development
6. Simplify the business

Underpinned by strong governance, risk management and corporate responsibility

Generating, capturing and sustaining value

Our business model is fundamental to our ability to create value and build a sustainable competitive advantage.

How we differentiate ourselves

As the world strives to make better use of limited resources, the demands on our materials, and on our materials science capabilities, are rapidly increasing. We are producing materials that can work at higher temperatures, higher pressures, in more corrosive and abrasive applications, at more precise tolerances and in smaller form factors than ever before.

We use two fundamental sets of materials: Ceramics and Carbon.

Ceramics

Ceramics typically have high melting points and are used to make high performance insulation, they are also chemically resistant at high temperatures and are used to make valves for corrosive and abrasive applications. We work with both ceramic fibre and structural ceramics, exploiting the structural properties of ceramics, their hardness, their electrical properties and their resilience in hostile environments.

We manufacture and install a wide range of thermal insulation products that significantly reduce energy consumption and emissions in a variety of high temperature processing applications. Structural ceramics are used for implanted medical devices exploiting their strength, abrasion resistance and chemical stability, to make power tubes for medical scanners, and in the manufacture of semiconductors.

Carbon

We use carbon for its electrical conductivity, with leading carbon grades for power generation, rail collector and wind applications. We use the inert and low friction properties of carbon to make seals and bearings used in jet engine seals to automotive vacuum pumps. We exploit the high temperature stability in inert atmospheres of carbon to produce insulation for vacuum furnaces, semiconductor applications and crucibles.

Further information on our technology can be found in 'Our strategy in action' on pages 17 to 25.

Morgan has approximately 80 manufacturing sites across more than 30 countries, supported by a network of sales offices around the world. We employ around 8,800 people serving customers in more than 100 countries.

Driving sustainable growth and ensuring our value is shared across all our stakeholder groups

Investors
Delivering sustainable returns.

Customers
Creating world class solutions that build competitive advantage.

Employees
Developing and nurturing talent.

Communities
Delivering a positive contribution to the local communities in which we work.

Key performance indicators

To support the Group's strategy and to monitor performance, the Board of Directors and the Executive Committee use a number of financial and non-financial key performance indicators (KPIs).

These KPIs are selected measures which are important to the Group. Progress is assessed by comparison with the Group's strategy, its budget for the year and historical performance.

Divisional and business management use a range of further benchmarks and other KPIs as part of their planning and performance review processes. In order to measure the organic performance of the business, management further analyse the headline KPIs to exclude the impact of acquisitions and foreign exchange.

The KPIs are selected and reviewed to ensure they remain important to the success of the Group. Financial and non-financial performance is reviewed in more detail in the Corporate responsibility, Review of operations and Group financial review sections of this Report.

Financial KPIs

Organic constant-currency revenue growth[1]

1.4%

Why a KPI?

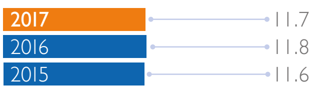
Creating consistent long-term value for shareholders. Focus on higher growth markets.

Performance

On an organic constant-currency basis revenue improved 1.4%. See Review of operations on pages 30 to 39.

Group headline operating profit margin[1]

11.7%



Why a KPI?

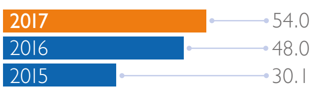
Creating consistent long-term value for shareholders. To have a culture of operational excellence and cost-efficiency.

Performance

Improving momentum with a return to organic growth, underpinned by operational efficiencies, and reinvestment into the businesses, partially offsetting the impact of the disposals.

Free cash flow before acquisitions, dividends, and US pension payment[1]

£54.0m



Why a KPI?

Creating consistent long-term value for shareholders.

Performance

The increase compared to 2016 was as a result of improved cash from operations (excluding the one-off US pension payment), lower capital expenditure and restructuring costs.

Return on invested capital[1]

17%

Why a KPI?

Creating consistent long-term value for shareholders.

Performance

Improvements in return on invested capital are primarily driven by increased operating profit.

Financial KPIs

Headline earnings per share[1]

22.5p

Why a KPI?

Creating consistent long-term value for shareholders.

Performance

Marginally lower headline earnings per share resulting from the tax impact on specific adjusting items.

Dividend per share

11.0p

Why a KPI?

Creating consistent long-term value for shareholders.

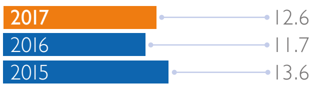
Performance

The Board has held the dividend flat during 2017 as it looks to rebuild dividend cover in the medium term.

Non-financial KPIs

Employee turnover

12.6%



Why a KPI?

To attract, retain, and develop the right people in the right roles.

Performance

This is believed to be an appropriate level of employee turnover.

Lost-time accident frequency[3] (per 100,000 hours worked)

0.39

Why a KPI?

To maintain a workplace that focuses on the health and safety of its employees and others affected by the Group's operations.

Performance

Despite the focus placed on health and safety at all sites and across all levels of the Group through 'thinkSAFE' leading to a lower total accident frequency, there was a higher lost-time impact.

Tonnes CO_2e per £m revenue[2,3]

326

Why a KPI?

To minimise the impact of the Group's business on the environment.

Performance

Although the Group benefited from a series of projects and environmental programmes focused on the sites identified as having the greatest environmental impact, overall CO_2e increased.

1. Definitions of these non-GAAP measures, and their reconciliation to the relevant GAAP measure, are provided on pages 41 to 44.
2. This KPI uses revenue at constant-currency in its calculation.
3. The 2017 lost-time accident frequency and CO_2e information have been subject to assurance by ERM Certification and Verification Services, see page 50 for further details.

Group strategy

Our long-term strategy is to build a Group with distinctive capabilities and performance in three areas:

- materials science capability and technology.
- application engineering capability.
- customer and end-market focus.

These capabilities strengthen the Group to deliver resilient financial performance and faster growth.

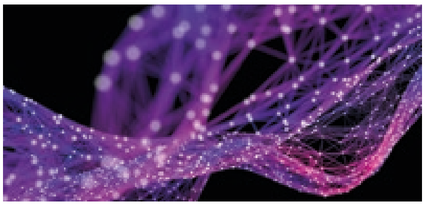
We will apply these capabilities to solve difficult problems for our customers where they value our differentiated products and support, and we will apply these capabilities ethically and safely in line with our high Group standards.

To support the strategy, the Group has set six key execution priorities:

1 Move to a global business structure	The reorganisation to six global business units was completed in 2016. It has led to improved global co-ordination across the Group and strengthened accountability within each global business unit, simplifying the approach to customers and markets and increasing operational focus.
2 Improve technical leadership	Research and development investment continues to be increased to extend Morgan's technical lead and to accelerate new product development. The Centres of Excellence allow for the concentration of development efforts in those areas which can deliver the greatest benefit globally to the Group.
3 Improve operational execution	There are a number of opportunities across the global business units to improve operational execution. Resource and capital are allocated to target specific improvements to efficiency and effectiveness on a business-by-business basis.
4 Drive sales effectiveness and market focus	The Group is focused on improving a number of aspects of its sales capabilities and process: sales processes and their efficiency, the management of key customer accounts and distribution channels, and deeper understanding of end-markets and faster-growing segments.
5 Increase investment in people management and development	The Group aims to strengthen its leadership capability and deepen functional capabilities across the business, including in sales and engineering. Senior leaders will be benchmarked externally, new talent introduced and future leadership candidates identified from within the business. Performance management will be enhanced for the Group's top management and the structures and targets for incentive schemes will be reviewed. The Group will invest more in executive training and create clear career paths for its technologists and engineers.
6 Simplify the business	The reorganisation of the business enables the Group to run each business unit on a global basis. A Morgan business will have sustainable presence in its end-market and be scalable, operating in attractive growing markets where it has the ability to add value to our customers. It will have synergies with the rest of the portfolio, be organisationally robust and deliver – or be capable of delivering – strong financial performance.

Our strategy in action

We will serve markets that are growing and where we have room to grow and where customers value our differentiated products and services.

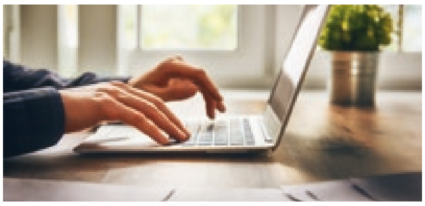


Improve technical leadership

Find out more
Page 18

Improve operational execution

Find out more
Page 20



Drive sales effectiveness and market focus

Find out more
Page 22

Increase investment in people management and development

Find out more
Page 24

Our strategy in action continued

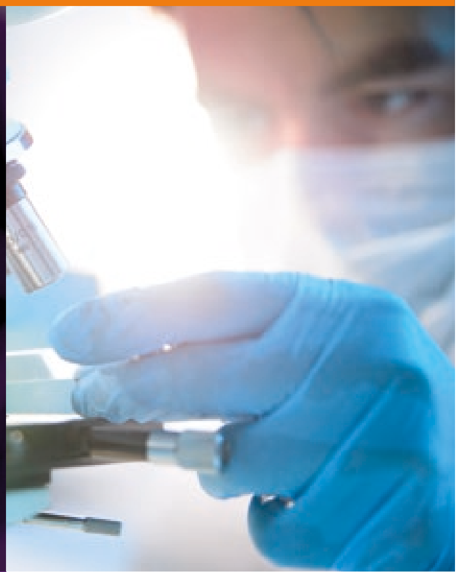
Improve technical leadership

Research and development (R&D) investment has been increased to build Morgan's technical lead and to accelerate new product development. The Centres of Excellence concentrate our development efforts in those areas that can deliver the greatest benefit globally to the Group.

The Group's R&D strategy is governed by four key underlying principles:

1. To be the **acknowledged leader in materials science** for our chosen technology families.
2. To understand the **application of our materials science in our customers' products and processes**, providing maximum benefit to them through advanced application engineering.
3. To demonstrate a clear **understanding of where our technology competences are positioned today against competitors** and emerging and competing technologies, forming a clear view of where we need to be.
4. The depth and the breadth of our understanding will be built through a **community whose culture is collaborative** and which develops deep institutional knowledge.

The Group's commitment to technology is demonstrated by the Group's total R&D spend in 2017 of £34.3 million (2016: £29.2 million), equal to 3.4% of sales (2016: 3.0%). The Group anticipates increasing its investment to around 4% of sales over the next two to three years (from a 2015 actuals baseline of 2.8%).



Centres of Excellence

A key underpinning principle of Morgan's R&D strategy is in the investment in four global materials Centres of Excellence (CoE): Insulating Fibre, Structural Ceramics, Carbon Science, Metals and Joining.

These four CoEs consolidate the Group's R&D efforts around its core technologies, and provide the opportunity to create critical mass to increase the effectiveness of our R&D spend and accelerate key projects.

The CoEs focus on the strategic priorities of the global business units and the Group to help maintain Morgan's world-leading position in its chosen technology areas. The global business units ensure the CoEs prioritise their efforts, and retain a strong commercial direction. This in turn enhances the R&D capability of the business by delivering core materials science platforms that the manufacturing sites transform into products.

The Insulating Fibre CoE in Bromborough, UK, is a state-of-the-art facility employing 25 dedicated scientists focused on the continued development of Morgan's fibre product range. Morgan's market-leading low bio-persistent Superwool® fibre technology and product range continue to be developed with patented materials science. Morgan is now extending the operational temperature range, allowing it to provide customers with superior insulation performance, improved fire protection and weight-saving opportunities in more applications.

There has been particular success across a range of end-markets such as iron and steel, aluminium processing, automotive and passive fire protection, where new products have been successfully launched in 2017.

The Structural Ceramics CoE in Stourport, UK, oversees the major advanced ceramic science developments for the Group. The facility concentrates on leading-edge ceramic materials developments to support both current and new markets. Initial focus has been on opportunities in the medical, aerospace and environmental sectors, whilst a focus on new emerging markets and technologies also ensures that the Group stays at the forefront of materials science. As part of this focus the CoE includes the R&D programme for Morgan's additive manufacturing of ceramic materials.

The Carbon Science CoE will support the Electrical Carbon and Seals and Bearings businesses and is located in the Innovation Park at Penn State University, Pennsylvania, USA, close to the university's top talent and facilities. The partnership with Penn State will combine resources and experience, creating a synergy which will enable significant progress in the development of carbon materials for a range of sectors and applications.

Pennsylvania was seen as the ideal location for the new CoE due to Penn State's cutting-edge academic research and proximity to a number of Morgan's key manufacturing sites. The team has been established and the Centre will open formally in 2018.

The Metals and Joining CoE is located in Hayward, California, USA. The CoE supports the Technical Ceramics businesses which are involved in providing metallic joining solutions and joining ceramic and metal to metals to form hermetic seals. Hayward is Morgan's largest facility utilising this technology and hence this CoE will benefit from close proximity to the business, production processes and customers. The CoE has already produced new patented technology that has led to new products starting trials with customers.

Morgan's Technical Advisory Board

One of the key objectives of our R&D strategy is to establish a network of global technology partners to ensure we are positioned to work with the world's best academics and research institutes, who are at the forefront of materials science.

Morgan has established a Technology Advisory Board, drawn from experts based in Asia, Europe, North and South America. These experts are at the forefront of their academic fields in technical ceramics, carbon science, insulating ceramics, glass ceramics and composites.

Their combined knowledge gives us the opportunity to accelerate key elements of our R&D programmes whilst assessing new horizon and emerging technologies.

Our strategy in action continued

Improve operational execution

There are a number of opportunities across the global business units to improve operational execution. Resource and capital are allocated to target specific improvements to efficiency and effectiveness on a business-by-business basis.

Procurement efficiency

In 2017 we made significant improvements in packaging in our Thermal Ceramics business. We spend around £10 million per year on cardboard packaging of varying specification and size and the Thermal procurement team identified this as a priority area for improvement.

Through their work, they identified a range of changes we could make to reduce costs. For example, in the North American business we were paying twice the price for the same cardboard box compared to other sites.

In some sites our boxes are over specified in terms of thickness, material content and printing. Moving to a range of standard solutions can reduce costs considerably.

We have also identified products where we don't even need to use cardboard packaging – there are alternatives which are just as effective, lower cost and produce less waste.

Morgan's operational efficiency focuses on:

- global sourcing – moving from local to regional or global sourcing for its raw materials
- lean manufacturing transformation – identification and elimination of waste within the production processes and the acceleration of continuous improvement projects
- manufacturing strategy – improving global capacity management and planning
- benchmarking – sharing best practice across divisions and global businesses to achieve and monitor cost savings

Our larger lean activities are progressing well. For example, in our Thermal plant in Augusta, USA, the lean project started with a focus on material storage and flow. The team looked at blanket warehouse utilisation for the site. Blanket is a lightweight-fibre-insulation-material and as such we require high volume storage to hold finished goods. The team have redesigned the racking system and material and process flow and have eliminated the need for an offsite warehouse, and all the associated material movements and costs.

Our strategy in action continued

Drive sales effectiveness and market focus

The Group is focused on improving a number of aspects of its sales activity and the capability of our sales teams: sales processes and their efficiency, the management of key customer accounts and distribution channels, deeper understanding of end-markets and faster-growing segments, and sales incentive plans.

Sales force effectiveness pilots

In our Thermal business in China, 80% of the revenue is derived from 15% of the customers. However, we were not necessarily focusing our time only on the more important customers. Our pilot focussed on growing existing customers through segmentation, determining service levels for each segment, and aligning our resources accordingly.

Our work has provided a clear view on how we need to segment our customers and the importance of getting the right route to market for low volume customers. The China organisation has therefore made a transition to a model with sales, key account management, regional sales and new business development.

The pilot also reinforced our understanding of our position in the market. In interviews customers were positive about Morgan's products and service, but indicated that roles and responsibilities are not always clear in our teams. They also identified areas where we should be providing higher performance products.

Four further pilot projects were completed in 2017: two in our Thermal business, and one each in Seals and Bearings and Electrical Carbon.

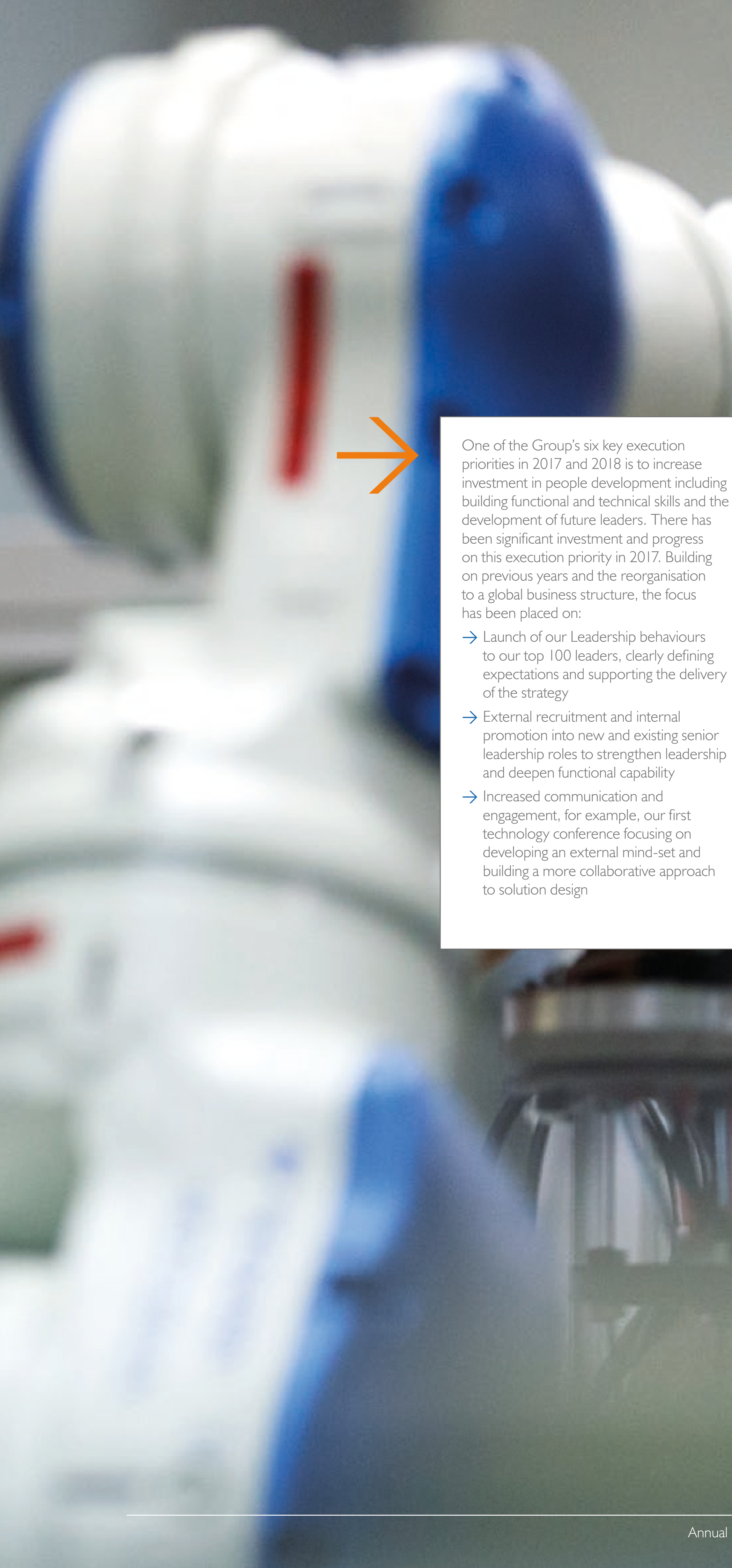
These looked in depth at customer segmentation, pricing, value selling and our wider sales process. Our goal is to improve those specific areas and build new capabilities for our business that we can roll out more broadly.

The sales effectiveness programme was launched as one of our strategic execution priorities focused on sales processes, structure and efficiency; key account management; channel management; end market understanding and market hotspots; and conducting pilot improvement projects across our global business units. Through these pilot projects, we have segmented our customer base and aligned our resources to our customers. We tested tools for pricing and sales management and we designed new sales incentive plans which we are trialling now. We still have much to do, but we have a good foundation to build upon.

Our strategy in action continued

Increase investment in people management and development

The Group aims to strengthen its leadership capability and deepen functional capabilities across the business, including in sales and engineering. Senior leaders will be benchmarked externally, new talent introduced and future leadership candidates identified from within the business.



One of the Group's six key execution priorities in 2017 and 2018 is to increase investment in people development including building functional and technical skills and the development of future leaders. There has been significant investment and progress on this execution priority in 2017. Building on previous years and the reorganisation to a global business structure, the focus has been placed on:

- Launch of our Leadership behaviours to our top 100 leaders, clearly defining expectations and supporting the delivery of the strategy
- External recruitment and internal promotion into new and existing senior leadership roles to strengthen leadership and deepen functional capability
- Increased communication and engagement, for example, our first technology conference focusing on developing an external mind-set and building a more collaborative approach to solution design
- Sales and technology assessment to inform future capability requirements and alignment of resources
- Development of individuals and teams
- Continued recruitment and development of graduates.

In 2018, our Leadership behaviours will be integrated into our performance management process for our top 300 leaders. Following key hires, both external and internal moves, the focus will move to the integration of individuals into their new roles to enable a better transition to effective performance. We will be making continued investment in our sales capability through the provision of training.

Risk management

Morgan has an established risk management methodology which seeks to identify, prioritise and mitigate risks, underpinned by a 'three lines of defence' model comprising an internal control framework, internal monitoring, and independent assurance processes.

The Board considers that risk management and internal control are fundamental to achieving the Group aim of delivering long-term sustainable growth in shareholder value.

Risks are identified both 'top down' by the Board and the Executive Committee, and 'bottom up' through the Group's global business units (GBUs) and Divisions, and are quantified by assessing their inherent impact and mitigated probability to ensure that residual risk exposures are understood and prioritised for control throughout the Group.

Senior executives are responsible for the strategic management of the Group's principal risks, including related policy, guidelines and process, subject to Board oversight.

Throughout 2017, the Board reviewed the status of all principal risks with a significant potential impact at Group level. Additionally, the Audit Committee carried out focused risk reviews of each Division/GBU. These reviews included an analysis of both the principal risks, and the controls, monitoring and assurance processes established to mitigate those risks to acceptable levels. As a result of these reviews, a number of actions were identified to continue to improve internal controls and the management of risk.

High-level guidance on the Board's appetite for different risks is included again this year. The Group is willing to take considered risks to develop new technologies, applications, partnerships and markets for its products, and to meet customer needs. The Group strives to eliminate risks to product quality and health and safety, which are essential to the success of our products and the safety of our people and contractors.

The appetite for risk in the areas of legal and regulatory compliance is extremely low and the Group expects its businesses to comply with all laws and regulations in the countries where they operate. The Group has a low appetite for financial risk. Certain risks, such as pension funding, are likely to take a longer period to be mitigated.

As in 2016, an indication of the Board's assessment of the trend of each risk – i.e. whether the potential impact has increased, decreased or is broadly unchanged over the past year – is included. The Board has also identified new risks to the delivery of the Group's strategy and these are indicated in the table below.

The following are the Group's principal risks and uncertainties, representing those risks that the Board feels could have the most significant impact on achieving the Group's strategy of building a sustainable business for the long term and delivering strong returns to the Group's shareholders.

Strategic and external risks

Risk description, assessment and trend from 2016	Mitigation
1. Technical leadership The Group's strategic success depends on maintaining and developing its technical leadership in materials science over its competitors. Unforeseen/unmitigated technology obsolescence, the emergence of competing technologies, the loss of control of proprietary technology or the loss of intellectual property/know-how would impact the Group's business and its ability to deliver on its strategic goals. The advanced technological nature of the Group requires people with highly differentiated skillsets. Any inability to recruit, retain and develop the right people would negatively impact the Group's ability to achieve its strategic goals. **Trend** Unchanged	The Group has a Chief Technology Officer and a dedicated technology team which monitors relevant technology and business developments globally using technology roadmaps linked to 20 major technology families to ensure it remains at the leading edge of development. Two global Centres of Excellence were previously established, with a further Centre opening in Hayward California, USA in 2017. A fourth Centre is being established at Penn State University, Pennsylvania, USA, which will formally open in 2018. These Centres focus Morgan's expertise and research resources on core technologies. They are supported by a Technical Advisory Board comprising some of the world's leading academics in relevant fields, who provide ongoing insight, advice and challenge to inform the Group's technology plans. The technology team proactively manages the Group's technology pipeline and R&D investment in existing technologies, as well as actively managing the technology lifecycle. The technology pipeline and key R&D projects are regularly reviewed by the Executive Committee and the Board. Where Group products are designed for a specific customer, they are developed in partnership with the customer in order to maintain leading-edge differentiation. The Group seeks to secure intellectual property protection, where appropriate, for its existing and emerging portfolio of products; external advisers manage this protection globally. The Group continued its Global Leadership Programme in conjunction with Cranfield University, adding an advanced programme to develop more high-potential commercial, functional and technical leaders. The Graduate Leadership Programme continued to run in 2017. Further detail on our people can be found on pages 52 to 53. Further detail on R&D can be found on pages 18 to 19.

Risk key

Increase | No change | Decrease

Risk description, assessment and trend from 2016	Mitigation
Strategic and external risks	
2. Operational execution / organisational change / sales effectiveness As part of the Group's strategy to improve the efficiency of its operations and organisation, various changes have been made to operational processes at individual sites, to the Group's structure, and the structure of and incentives for our sales force. Further improvements and changes are planned for future years. Failure to adequately manage these changes could result in interruption to operations or customer service, or a failure to maximise the Group's opportunities. **Trend** New risk, no change	Changes to operational processes are carefully considered by site, GBU and Divisional management before implementation. Personnel improvements have been made within the businesses to oversee operational changes, for example with a new VP of Operational Excellence joining the Technical Ceramics GBU in 2017. Operational improvements and savings are monitored against budget by the Executive Committee to ensure that changes deliver the savings promised without disruption to business operations. Organisational changes are assessed by the CEO, the Executive Committee and sometimes the Board before being implemented in line with local employment regulations. Changes to our sales structures and incentives are reviewed at various levels of the organisation, before being launched.
3. Portfolio management The Group operates across a range of product and technology families. These are subject to long-term market trends which may lead to either obsolescence or opportunities to further expand the Group. Failure to proactively manage the Group's portfolio of businesses in line with this technology profile may lead to the value of the Group's businesses being eroded over time or a failure to exploit opportunities to acquire businesses with the capability to add further value to the Group. **Trend** New risk, no change	The Board performs regular reviews of the Group's portfolio and has disposed of non-core businesses in 2017.
4. Macro-economic and political environment The Group operates in a range of markets and geographies around the world and could be affected by political, economic, social or regulatory developments or instability, for example an economic slowdown or issues stemming from oil and natural resources price shocks. The UK's exit from the EU may have an impact on the Group if subsequent tariff changes, or border effects, negatively impact the profitability of the Group's products. The current value of Group UK exports to the EU is approximately £30 million, and imports into the UK from the EU are approximately £15 million. **Trend** Decreased	The Group's broad market and geographic spread helps to mitigate the effects of political and economic changes. Budgets and forecasts for Morgan's different businesses are used to monitor delivery against expectations and anticipate potential external risks to performance. These are subject to regular review by the Executive Committee and Board. The overall macroeconomic environment has improved during the course of the year and the Group has delivered organic growth. The impact of the UK's exit from the EU could be mitigated by moving production to alternative sites where tariffs are not applied to products.
Operational risks	
5. Environment, health and safety (EHS) The Group operates a number of manufacturing facilities around the world. A failure in the Group's EHS procedures could lead to environmental damage or to injury or death of employees or third parties, with a consequential impact on operations and increased risk of regulatory or legal action being taken against the Group. Any such action could result in both financial damages and damage to reputation. **Trend** Unchanged	Managing its operations safely is the Group's number one priority. The Group has a comprehensive EHS programme managed by the Director EHS, with clear EHS standards and a programme of independent audits to assess compliance. The Director EHS sets annual priorities for EHS which are approved by the Executive Committee. These form the basis for individual sites' own EHS priorities and plans, and complement the Group's 'thinkSAFE' behavioural safety programme. EHS performance is monitored by the Executive Committee and the Board. As at 31 December 2017 the Group was managing projects to remediate legacy contamination at three former sites and one operational site in conjunction with external specialists and relevant authorities. The anticipated costs of these projects are provided for in the financial statements. Further detail of the EHS programme can be found on pages 46 to 51.

Risk management continued

	Risk description, assessment and trend from 2016	Mitigation
Operational risks	**6. Product quality, safety and liability** Products used in applications for which they were not intended or inadequate quality control/over-commitment on customer specifications could result in products not meeting customer requirements, which could in turn lead to significant liabilities and reputational damage. Some of our products are used in potentially higher risk applications such as in the aerospace, automotive, medical and power industries. **Trend** Unchanged	Many of the Group's products are designed to customer specifications. Our businesses' quality management systems and training help ensure that all of Morgan's products meet or exceed customer requirements and national/international standards. The Group Legal Policy requires that contracts relating to products used in potential high-risk applications are subject to legal review to ensure that appropriate protections are in place for product quality risks. The Group insurance programme includes product liability insurance; this Group-level insurance is reviewed annually by the Board.
	7. IT and cyber security Information security/cyber risks are dynamic and ever-present in the external environment. If the Group were to lose critical data or information, including proprietary technology information, through inadequate data management or compromised information security, the business would be impacted and could suffer reputational damage. The effective management of the Group's IT infrastructure is important in enabling our businesses to reliably deliver customer requirements. If a key business system were to fail or core systems implementation were ineffective, the ability of the business to deliver on its strategic goals might be impacted. **Trend** Unchanged	The Group has an Information Technology (IT) Policy and guidelines in place as well as Group and business IT teams to manage the Group's infrastructure, IT systems and information security risks. A new IT Security Policy was launched in 2017 to further enhance security. In 2018 the Group is required to comply with the National Institute of Standards and Technology (NIST) cybersecurity framework in the USA and the EU's General Data Protection Regulations. Programmes to deliver compliance with these requirements are well advanced. The Group continues to deploy and upgrade enhanced enterprise resource planning (ERP) systems in those businesses where a need for improvement is identified. These deployments are managed in line with IT project management standards.
	8. Supply chain / business continuity The Group has a number of potential single-point exposure risks, which include: → Single-point supplier – a significant interruption of a key internal or external supply could impact business continuity. → Single-point customer – the unmitigated loss of a major customer could have an impact on Group profit. The Group's largest customer represents circa 2% of Group revenue. → Single-point site – a key site exposed to a strike, a natural catastrophe or serious incident, such as fire, could impact business continuity. One Group site, Hayward, is situated in the California earthquake zone, (USA). **Trend** Unchanged	The Group has a diversified manufacturing, customer and geographic base which provides a level of resilience against single-point exposures. Were any site to be unavailable, production in most cases could be switched to other sites. Management of these risks also involves monitoring and reviewing supply chains (internal and external), dual/multiple sourcing of materials or strategic stock, site security and safety mechanisms, business continuity plans, the maintenance of product quality and strong customer relationships. The Group insurance programme includes business interruption cover and specific cover in relation to the impact of an earthquake in California, USA; this Group-level insurance is reviewed annually by the Board.
Financial risks	**9. Treasury** The Group's global reach means that it is exposed to uncertainties in the financial markets, the fiscal jurisdictions where it operates, and the banking sector which heighten the Group's funding, foreign exchange, tax, interest rate, credit and liquidity risks as well as the risk that a bank failure could impact the Group's cash. **Trend** Decreased	The Group's treasury function operates on a risk-averse basis. Required controls over selection of banks, cash management and other treasury practices and payments globally are documented in Morgan's Treasury Policy and related procedures. The Group treasury team manages the Group's funding, liquidity, cash management, interest rate, foreign exchange, counterparty credit and other treasury-related risks. Treasury matters are regularly reviewed by the Board and Audit Committee. In 2017 the Group repaid €20 million and $175 million of private placement debt utilising the funds raised by the 2016 US private debt placement. Further detail on our Treasury Policy is set out in the Group Financial Review, and can be found on page 39.

Financial risks

Risk description, assessment and trend from 2016	Mitigation
10. Tax The Group operates in many jurisdictions around the world and could be affected by changes in tax laws and regulations within the complex international tax environment. The OECD Base Erosion and Profit Shifting (BEPS) framework provides additional obligations and filing requirements for the Group as countries implement the actions in the framework. These could have an impact on the tax paid by the Group. Tax reform in the US could also impact the Group's tax rate. **Trend** Unchanged	The Group's tax function, working in conjunction with external specialists as required, closely monitors fiscal developments and changes such as BEPS and US tax reform, to ensure that the Group's tax arrangements and practices continue to comply with the requirements of all relevant jurisdictions whilst also enabling efficient management of the tax liability. The Group's Head of Tax reports periodically to the Audit Committee on key tax issues and initiatives.
11. Pension funding The Group sponsors several Defined Benefit pension arrangements whose liabilities are subject to fluctuating interest rates, investment values and inflation. This coupled with the increased longevity of members will result in increased funding burdens on the Group in the future. The deficit in Morgan's global Defined Benefit pension schemes calculated on the basis required for IAS19 accounting disclosures increased from £204 million as at 31 December 2015 to £271 million at 31 December 2016, reducing to £218 million at 31 December 2017. **Trend** Decreased	Morgan's primary means of mitigating pensions funding risk is proactive management of the pension scheme assets and liabilities through an integrated pension strategy focusing on funding, investment and benefit risk. This involves both internal management within the Group and also externally through the scheme Trustees, corporate actuaries and professional advisers. In the UK, the Morgan Senior Executive Pension and Life Assurance Scheme closed to future accrual in April 2016 and the Morgan Pension Scheme will close to future accrual in April 2018. In consultation with the Company, the Trustees have also adopted a pro-active approach to the management of risk in the Schemes' investment portfolios, significantly reducing their unhedged interest and inflation rate exposure. In the USA, in June 2016 one Defined Benefit Pension Plan completed a full legal termination, and for the other remaining Scheme, a formal offer of a present-value-equivalent, lump-sum cash payment was made to members. In December 2017, the Company made an additional contribution of $36 million to this Scheme.

Legal and Compliance Risk

Risk description, assessment and trend from 2016	Mitigation
12. Contract management As a global advanced materials business supplying components into critical applications, the Group may be exposed to liabilities arising from the use of its products. Ineffective contract risk management could result in significant liabilities for the Group and could damage customer relationships. **Trend** Unchanged	The Group has an in-house legal function supplemented by specialist external lawyers. The Group Legal Policy requires in-house legal review of high-value or high-risk contracts to ensure they contain appropriate protections for the Group. The Policy requires CEO approval before a business can enter into an unlimited liability contract or one where the liability cap exceeds £5 million. During 2017 the legal function transitioned to a geographic model to enable closer engagement between the Group's businesses and lawyers. This model is delivering improved collaboration in managing contract risks. To the extent that risk cannot be mitigated through contractual arrangements, the Group has insurance cover in place, including product liability insurance.
13. Compliance The Group's global operations must comply with a range of national and international laws and regulations including those related to bribery and corruption, human rights, trade/export compliance and competition/anti-trust activities. A failure to comply with any applicable laws/regulations could result in civil or criminal liabilities and/or individual or corporate fines and could also result in debarment from government-related contracts or rejection by financial market counterparties and reputational damage. **Trend** Unchanged	The Group is committed to the highest standards of corporate and individual behaviour. This commitment is set out in the Group's Core Values Statement and Ethics Policy, and is underpinned by ongoing investment in the in-house Responsible Business Programme (RBP). The RBP is a wide-ranging programme which includes policies, standards and guidance; training materials; the provision of an employee ethics hotline; and systems to support effective screening and due diligence of third parties. A new Director of Ethics & Compliance has been appointed who will be oversee further improvements to the RBP in 2018. The Group also has an Export Compliance Director in the USA whose role is dedicated to ensuring compliance with export controls. In addition to Group level compliance specialists, our businesses are required to establish compliance officer roles, which are responsible for supporting local training and monitoring. Morgan also employs country-specific trade and export compliance specialists in higher risk businesses and jurisdictions. Further details on the RBP can be found on page 45.

Review of operations

Improving momentum with a return to organic growth.

Group performance

Group revenue and operating profit

Group revenue was £1,021.5 million (2016: £989.2 million), an increase of 3.3% on a reported basis compared with 2016. Improvements in the underlying business and benefits from the decline in the value of sterling against other currencies, with much of the Group's business being denominated in non-sterling currencies, more than offset the impacts of disposals. On an organic constant-currency* basis revenue increased by 1.4%.

Group headline operating profit was £119.7 million (2016: £116.9 million). Headline operating profit margin was 11.7%, compared to 11.8% for 2016.

Operating profit improved to £158.1 million (2016: £107.3 million) and profit before tax improved to £135.8 million (2016: £87.9 million). Both of these included specific adjusting items of £45.7 million (2016: £(1.7) million), explained in note 6 to the financial statements on page 117, and year-on-year movements in exchange rates.

Restructuring costs and other items

Restructuring costs and other items were £nil (2016: £(1.0) million). In 2016 these costs represent the conclusion of the significant rationalisation of the Carbon Materials footprint and corporate restructuring, partially offset by the gain on disposal of property within the Carbon business.

	Revenue		EBITA[1]		Margin %	
Statutory basis	**2017 £m**	2016 £m	**2017 £m**	2016 £m	**2017**	2016
Thermal Ceramics	**426.2**	413.3	**56.9**	55.0	**13.4%**	13.3%
Molten Metal Systems	**46.9**	43.5	**7.0**	6.7	**14.9%**	15.4%
Thermal Products Total	**473.1**	456.8	**63.9**	61.7	**13.5%**	13.5%
Electrical Carbon	**157.1**	156.2	**16.7**	19.7	**10.6%**	12.6%
Seals and Bearings	**113.2**	97.7	**17.5**	14.2	**15.5%**	14.5%
Technical Ceramics	**257.1**	248.1	**28.3**	26.6	**11.0%**	10.7%
Carbon and Technical Ceramics Total	**527.4**	502.0	**62.5**	60.5	**11.9%**	12.1%
Composites and Defence Systems	**21.0**	30.4	**(1.1)**	1.1	**(5.2)%**	3.6%
	1,021.5	989.2				
Divisional EBITA[1]			**125.3**	123.3		
Corporate costs			**(5.6)**	(5.4)		
Group EBITA[1]			**119.7**	117.9	**11.7%**	11.9%
Restructuring costs and other items			**–**	(1.0)		
Group headline operating profit[1]			**119.7**	116.9	**11.7%**	11.8%
Amortisation of intangible assets			**(7.3)**	(7.9)		
Operating profit before specific adjusting items			**112.4**	109.0		
Specific adjusting items included in operating profit			**45.7**	(1.7)		
Operating profit			**158.1**	107.3	**15.5%**	10.8%
Net financing costs			**(22.5)**	(20.0)		
Loss on disposal of business			**–**	–		
Share of profit of associate (net of income tax)			**0.2**	0.6		
Profit before taxation			**135.8**	87.9		

1. Definitions of these non-GAAP measures, and their reconciliation to the relevant GAAP measure, are provided on pages 41 to 44.

Specific adjusting items

In the consolidated Income statement, the Group presents specific adjusting items separately. In the judgement of the Directors, due to the nature and value of these items they should be disclosed separately from the underlying results of the Group to allow the reader to obtain a proper understanding of the financial information and the best indication of underlying performance of the Group.

Details of specific adjusting items arising during the year and the comparative period are given in note 6 to the financial statements.

	2017 £m	2016 £m
Specific adjusting items		
Net pension settlement credit	–	6.8
Impairment of intangible assets	–	(8.5)
Net profit on disposal of business	45.7	–
Total specific adjusting items before income tax	45.7	(1.7)
Income tax (charge)/credit from specific adjusting items	0.9	(2.8)
Income tax (charge)/credit from US Tax Cuts and Jobs Act	4.1	–
Total specific adjusting items after income tax	50.7	(4.5)

2017: Net profit on disposal of business

On 31 March 2017, the Group completed the sale of its UK Electro-ceramics business, comprising the two sites at Ruabon and Southampton. The Group also announced the closure of its US Electro-ceramics business, which formed the remainder of the Group's Electro-ceramics business.

The Group reflected a profit on disposal of £26.8 million associated with this transaction. A deferred tax asset of £1.5 million was recognised in connection with the closure of the US business.

On 31 March 2017, the Group completed the sale of its global Rotary Transfer Systems. The business was principally located at two manufacturing sites; Antweiler, Germany and Chalon, France.

The Group reflected a profit on disposal of £18.9 million associated with this transaction. An income tax charge of £0.6 million was recognised in respect of this disposal.

US Tax Cuts and Jobs Act

As a consequence of the enactment of H.R.1 commonly referred to as the Tax Cuts and Jobs Act in the US a credit of £4.1 million was recognised. This comprised of the revaluation of tax balances to reflect the reduction in the federal tax rates offset by an income tax charge for deemed repatriation tax for overseas subsidiaries of US companies.

Review of operations continued

Divisional and global business unit performance

Thermal Products

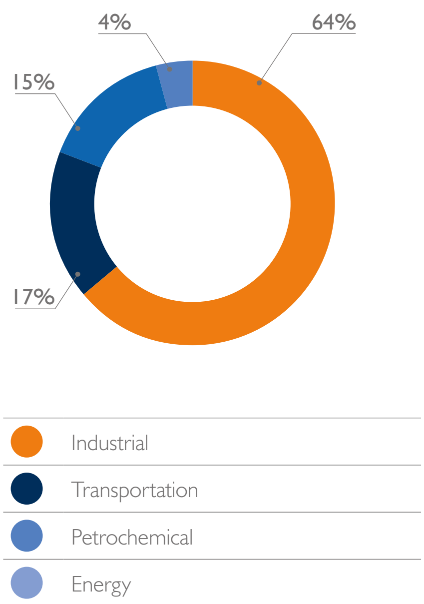
Revenue

£m

Divisional EBITA*

£m

Thermal Products 2017 % of revenue



Highlights

- → The Thermal Products Division 2017 reported revenue was £473.1 million (2016: £456.8 million), an increase of 3.6% compared to 2016.
- → On an organic constant-currency revenue* basis, revenue decreased by 1.4% compared to 2016.
- → Divisional EBITA margin* was in line with prior year at 13.5% (2016: 13.5%).

Business description

The Thermal Products Division comprises the Thermal Ceramics and Molten Metal Systems global business units.

Thermal Ceramics manufactures advanced ceramic materials, products and systems for thermal insulation in high-temperature environments. Systems are designed for the safety of people and equipment in demanding applications, while products help customers, especially those operating energy-intensive processes, to reduce energy consumption, emissions and operating costs. Thermal Ceramics products are used in high-temperature industrial processing of metals, petrochemicals, cement, ceramics and glass, and by manufacturers of equipment for aerospace, automotive, marine and domestic applications. One of Thermal Ceramics' core strengths is the ability to address individual customer problems, using materials and applications expertise to design, manufacture and install optimal thermal solutions.

Molten Metal Systems manufactures an extensive range of high-performance crucibles and foundry consumables for non-ferrous metal melting applications. Its products provide melting solutions for foundries, die-casters and melting facilities working with zinc, precious metals, aluminium, copper, brass, bronze and other non-ferrous metals. With its extensive applications experience and process knowledge Molten Metal Systems helps customers put together the optimal system for their needs. The global business unit works with customers in non-ferrous castings, metal powder production, refining and recycling of precious metals and the production of pure aluminium for electronics applications.

Footprint

As at 31 December 2017 Thermal Products comprised 28 operating sites employing approximately 3350 people, with manufacturing sites across the world. It also has a comprehensive network of sales offices allowing immediate access to and facilitating direct working with end-users. Some sales, particularly for the insulating fibre and crucible product ranges, are made through a well-established distributor network.

Performance and business review

Revenue for Thermal Products for the year was £473.1 million, representing an increase of 3.6% compared with £456.8 million in 2016. On an organic constant-currency* basis, year-on-year revenue decreased by 1.4%. Divisional EBITA* for Thermal Products was £63.9 million (2016: £61.7 million) with a Divisional EBITA* margin of 13.5% (2016: 13.5%).

Revenue for Thermal Ceramics for the year was £426.2 million, representing an increase of 3.1% compared with £413.3 million in 2016. On an organic constant-currency* basis, year-on-year revenue decreased by 1.6%. Both North America and Europe declined organically reflecting the late cycle nature of the business. Growth in Asia was primarily driven by growth in China and India.

Thermal Ceramics 2017 EBITA* was £56.9 million (2016: £55.0 million) with EBITA margin* improving to 13.4% (2016: 13.3%), with benefits resulting from operational improvements and mix impacts, from lower project activity and increasing Superwool® sales.

Revenue for Molten Metals Systems for the year was £46.9 million, representing an increase of 7.8% compared with £43.5 million in 2016. On an organic constant-currency* basis, year-on-year revenue increased by 0.9%, with growth driven by performance in fire assay equipment and consumables resulting from the strength in the global precious metals (gold) market.

Molten Metal Systems 2017 EBITA* was £7.0 million (2016: £6.7 million) with EBITA margin* of 14.9% (2016: 15.4%), reflecting the year-on-year investment in technology and product development, partially offset by continued operational efficiency.

Priorities

The priorities for the Division reflect the six execution priorities of the Group. The Division continues to focus on utilising lean manufacturing techniques to drive greater efficiency and effectiveness in processes.

To drive a return to organic revenue growth and maintain market share, the Division will continue to invest in both R&D and Sales force effectiveness. R&D spend will increase to maintain the lead in materials and manufacturing technology and to develop adjacent products utilising existing material technology. The technical team will provide applications engineering support to customers, channel partners and sales teams.

Sales force effectiveness focus will be on the development, training and implementation of value selling models, restructuring the sales regions to optimise sales resources and ensuring the channel partners are supported to increase margins in an increasingly price sensitive market.

Outlook

The Division's book-to-bill ratio* was 1.06x in 2017 (2016: 0.96x).

The Division expects a return to organic growth during the course of 2018. There are positive signs in the market with increasing levels of orders and enquiries, oil prices rising and a more positive tone coming from most major markets in Europe and North America. The market for crucibles continues to be relatively flat overall, with India and China growing slowly.

Safety & efficiency

From thermally insulating heat shields to advanced ceramic fibre technology for electric vehicles, we are helping the automotive industry to improve vehicle safety, performance and energy efficiency to create more fuel efficient, safer vehicles.

Review of operations continued

Divisional and global business unit performance

Carbon and Technical Ceramics

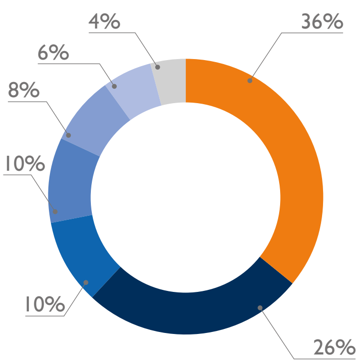
Revenue

£m

Divisional EBITA*

£m

Carbon and Technical Ceramics 2017 % of revenue



- Industrial
- Transportation
- Electronics
- Healthcare
- Energy
- Security and defence
- Petrochemical

Highlights

→ The Carbon and Technical Ceramics Division 2017 reported revenue was £527.4 million (2016: £502.0 million), an increase of 5.1% compared to 2016.

→ On an organic constant-currency revenue* basis, revenue increased by 6.2% compared to 2016, with increases across each of the businesses.

→ Divisional EBITA margin* was 11.9% (2016: 12.1%), with the impacts of divestment broadly offset by improvements in operational execution and volume leverage.

Business description

The Carbon and Technical Ceramics Division comprises the Electrical Carbon, Seals and Bearings and Technical Ceramics global business units.

Electrical Carbon uses advanced materials science to develop and manufacture a wide range of carbon brushes and collectors, brush holders, slip rings and linear transfer systems, which are used to transfer electrical current and data between stationary and rotating or linear moving parts in motor, generator, and current collector applications. Products are engineered for specific customer applications and they are often required to operate in harsh or extreme environments. Electrical Carbon's main markets are rail, industrial drives, power generation, iron and steel, mining and wind. The business's core strength is its longstanding materials and applications experience and its ability to engineer appropriate, reliable solutions for individual customer requirements.

Seals and Bearings makes high-performance self-lubricating bearing and seal components, used predominantly in pumps, industrial and domestic, or other sealing applications. It uses advanced carbon/graphite, silicon carbide, alumina and zirconia materials to engineer lightweight, low-friction bearings and seals. These materials help solve the problems associated with use of lubricants in extreme temperatures, corrosive or hygienic environments and where access is restricted. These materials are engineered into products that provide customer-specific solutions.

The business's components often help to extend the operating life of customers' equipment and make it more energy-efficient. The main markets served are specialist applications in the oil and gas, automotive, industrial, water pump, aerospace and home appliance sectors.

Technical Ceramics engineers high performance functional and structural ceramic materials, components and sub-assemblies to address customer-specific technical challenges. The business employs advanced materials science and applications expertise to produce parts that enhance reliability or improve the performance of its customers' products. Much of what the global business unit makes is used in demanding, harsh or critical environments. The global business unit works in selected segments of the electronics, energy, healthcare, industrial, petrochemicals, security and transport markets, typically in close collaborative customer relationships.

Footprint

As at 31 December 2017 the Carbon and Technical Ceramics Division comprised 50 operating sites employing approximately 5240 people, with manufacturing sites across the world. Due to the customer-specific nature of most of the products sold and the importance of staying very close to the market, most sales are made directly by the Division's sales force and application engineers, with limited use being made of distributors. The global spread of operating sites supplemented by a comprehensive network of sales offices allows immediate access to, and facilitates direct working, with customers and the products' end-users.

Performance and business review

Revenue for the Carbon and Technical Ceramics Division for the year was £527.4 million, representing an increase of 5.1% compared with £502.0 million in 2016. On an organic constant-currency* basis, year-on-year revenue increased 6.2%.

Divisional EBITA* for the Carbon and Technical Ceramics Division was £62.5 million (2016: £60.5 million) with Divisional EBITA margin* of 11.9% (2016: 12.1%).

Revenue for Electrical Carbon for the year was £157.1 million, representing an increase of 0.6% compared with £156.2 million in 2016. On an organic constant-currency* basis, year-on-year revenue increased by 3.1% as the rail, wind, mining and industrial segments all reflected year-on-year growth. Regionally, growth was primarily seen in Asia from strong sales of specialty graphite products, in particular due to sales of machined graphite in Korea supporting the semiconductor industry and carbon fibre felt materials in China for solar energy applications, and also the European markets. The North American market remained flat overall.

Electrical Carbon EBITA* was £16.7 million (2016: £19.7 million) with an EBITA margin* of 10.6% (2016: 12.6%). Margin decline from the dilutive impact of the Rotary business, and investment in sales and technology resources was partially offset by operational efficiency improvements.

Revenue for Seals and Bearings for the year was £113.2 million, representing an increase of 15.9% compared with £97.7 million in 2016. On an organic constant-currency* basis year-on-year revenue increased by 10.9%. Organic growth was driven by the water market and chemical and process industry pump seal and bearing demand. The business also experienced a stronger year for ceramic armour material in North America, with armour sales reflecting an increase of £3.6 million from 2016. The growth in these markets offset a decline in the Korean automotive market during the year.

Seals and Bearings EBITA* was £17.5 million (2016: £14.2 million) with an EBITA margin* of 15.5% (2016: 14.5%), and reflects continued good progress on operational improvements more than offsetting incremental investment in sales capability and R&D during the year.

Revenue for the Technical Ceramics global business unit was £257.1 million, an increase of 3.6% compared with £248.1 million in 2016. On an organic constant-currency* basis, year-on-year revenue increased by 6.1%, primarily driven by demand for ceramic cores in the aerospace market and supply of ceramic parts into the semiconductor market. This demand offset some of the slow-down in the demand for ceramic cores for the industrial gas turbine market in the last quarter.

Technical Ceramics EBITA* was £28.3 million (2016: £26.6 million) with an EBITA margin* of 11.0% (2016: 10.7%). The dilutive impact of the divestment of the Electro-ceramics business was offset by operational efficiency improvements and streamlining of overheads following the divestment.

Priorities

The priorities of the Carbon and Technical Ceramics Division, and of the three global business units of which it comprises, reflect the six execution priorities of the Group set out in early 2016. The Division remains focused on delivering operational efficiencies and investing savings in product development and sales effectiveness to realise the growth in our selected markets and drive margin expansion.

Carbon and Technical Ceramics has two global Centres of Excellence – Carbon Science and Metals and Joining. Investment in these Centres will be increased in 2018. Their focus will be on ensuring a strong pipeline of innovation for the businesses within the Carbon and Technical Ceramics Division.

The focus on operating costs is reflected in the Division's results, most notably in the improved EBITA margins*. Plant-specific initiatives include a focus on reducing scrap and improving yields, which when combined with the benefits of global footprint management, and the increased use of low-cost manufacturing operations, underpin the reductions in the operational cost base of the business. A significant part of the Division's capital expenditure is on investments which will improve the operational efficiency of the Division.

In line with the Group priorities, the Division is improving the capabilities of its sales force and the supporting processes, and has commenced an assessment of current structure and capabilities.

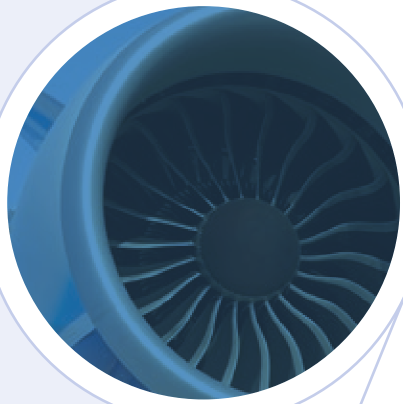
Outlook

The Division's book-to-bill ratio* was 1.10x for 2017 (2016: 1.02x).

The Division's focus will be on ensuring that operational efficiencies are delivered and that the savings from these are appropriately invested in technology, product development and sales effectiveness to maximise opportunity in the prevailing market conditions.

High performance

Designed to perform in the low humidity and hostile conditions that exist in high altitude operating environments, our carbon brushes are used in starters, alternators, auxiliary power units, generators, motors and fuel pump applications within the aerospace industry.



Review of operations continued

Divisional and global business unit performance

Composites and Defence Systems

Revenue

£m

Global business unit EBITA

£m

Highlights

→ Composites and Defence Systems 2017 reported revenue, and constant-currency revenue* was £21.0 million (2016: £30.4 million), reflecting a 30.9% decrease compared to 2016. EBITA margin* was (5.2)% (2016: 3.6%)

Business description

The Composites and Defence Systems global business unit develops high-strength, lightweight, fatigue-resistant products using advanced composite materials to provide customers with solutions for unusually demanding or critical applications.

With its materials technology and advanced capability in manufacturing and systems integration, Composites and Defence Systems is able to solve complex engineering problems for the defence and commercial markets.

The business's products are used for specialist applications in the security, medical, transport and aerospace markets. Its core strength is its capability for full engineering engagement from concept development, design engineering, tooling design and precision manufacturing, to scalable production and lifecycle support.

Footprint

As at 31 December 2017 Composites and Defence Systems employed approximately 160 people at its two operating sites in the UK and Canada.

Performance and business review

Revenue for Composites and Defence Systems for the year was £21.0 million, representing a decrease of 30.9% compared with £30.4 million in 2016, on a reported basis, driven by a reduction in vehicle programme activity with the UK MoD and the completion of the Danish vehicle programmes.

EBITA* for Composites and Defence Systems was £(1.1) million (2016: £1.1 million) with EBITA margin* of (5.2)% (2016: 3.6%). The EBITA* decline reflects the decline in revenue.

Priorities

Composites and Defence Systems continues to seek to capitalise on its product leadership in personal protection and armour, and to broaden its customer base.

Outlook

The business expects demand levels to remain subdued in 2018 as further actions will be taken to streamline the cost base and drive operational improvements.

Paralympic dream

Our composites business has supported Paralympics Team GB in their efforts to target gold, with the development of pioneering ultra-lightweight carbon fibre sit skis, at the 2018 Winter Paralympics in South Korea.

Group financial review

Foreign currency impact

The principal exchange rates used in the translation of the results of overseas subsidiaries were as follows:

	2017		2016	
	Closing rate	Average rate	Closing rate	Average rate
USD	1.35	1.29	1.23	1.35
€	1.13	1.14	1.17	1.22

The potential impact of changes in foreign exchange rates is given in note 20 to the financial statements on pages 131 to 139.

Retranslating the 2017 full year results at the January 2018 closing exchange rates would lead to revenue of £969.7 million and headline operating profit of £112.3 million.

Amortisation of intangible assets

The Group amortisation charge was £7.3 million (2016: £7.9 million).

Finance costs

The net finance charge was £22.5 million (2016: £20.0 million), primarily comprising of net bank interest and similar charges of £15.8 million (2016: £13.2 million), gain from financial instruments of £0.2 million (2016: £0.3 million) and the finance charge under IAS 19 (revised), being the interest charge on pension scheme net liabilities, which was £6.9 million (2016: £7.1 million). The impact of potential changes in interest rates on profit or loss are stated in note 20 to the financial statements on pages 131 to 139.

Taxation

The Group tax charge, excluding specific adjusting items, was £26.9 million (2016: £26.6 million). The effective tax rate, excluding specific adjusting items, was 29.9% (2016: 29.7%). Note 8 to the financial statements, on pages 118 to 119, provides additional information on the Group's tax charge.

Earnings per share

Headline earnings per share* was 22.5 pence (2016: 22.7 pence), and basic earnings per share was 37.8 pence (2016: 18.4 pence). Details of these calculations can be found in note 9 to the financial statements on page 120. Headline earnings per share* is a non-GAAP measure. A reconciliation from IFRS profit to the profit used to calculate headline earnings per share is included in note 9 to the financial statements on page 120.

Dividend

The Board is recommending a final dividend, subject to shareholder approval, of 7.0 pence per share on the Ordinary share capital of the Group, payable on 25 May 2018 to Ordinary shareholders on the register at the close of business on 4 May 2018. Together with the interim dividend of 4.0 pence per share paid on 24 November 2017, this final dividend, if approved by shareholders, brings the total distribution for the year to 11.0 pence per share (2016: 11.0 pence). A total dividend of 11.0 pence per share represents a dividend cover of headline EPS* 2.0x in 2017 (2016: 2.1x).

The Board has held the dividend flat during 2017 as it looks to rebuild dividend cover in the medium to long term. Note 39 to the financial statements, on page 167, provides additional information on the Company's distributable reserves.

Cash flow

Cash flow from operations was £101.5 million (2016: £128.3 million), lower than 2016 due to the additional US pension payment of £28.0 million. Free cash flow before acquisitions and dividends was £26.0 million (2016: £48.0 million). Net debt* at the year-end was £181.3 million (2016: £242.5 million), representing a net debt* to EBITDA* ratio of 1.2x (2016: 1.6x).

	2017 £m	2016 £m
Cash generated from operations	101.5	121.7
Add back: cash flows from restructuring costs and other items	–	6.6
Cash flow from operations[1]	101.5	128.3
Net capital expenditure	(34.4)	(38.4)
Net interest paid	(16.6)	(13.1)
Tax paid	(24.5)	(22.2)
Restructuring costs and other items	–	(6.6)
Free cash flow before acquisitions and dividends[1]	26.0	48.0
Free cash flow before acquisitions, dividends and on-off US pension payments[1]	54.0	48.0
Dividends paid to external plc shareholders	(31.4)	(31.4)
Net cash flows from other investing and financing activities	58.4	(15.6)
Exchange movement	8.2	(27.5)
Movement in net debt in period[1]	61.2	(26.5)
Opening net debt[1]	(242.5)	(216.0)
Closing net debt[1]	(181.3)	(242.5)

1. Definitions of these non-GAAP measures, and their reconciliation to the relevant GAAP measure, are provided on pages 41 to 44.

Commitments for property, plant and equipment and computer software for which no provision has been made are set out in note 24 to the financial statements on page 153.

Review of operations continued

Group financial review continued

Capital structure

At the year end total equity was £234.3 million (2016: £164.7 million) with closing net debt* of £181.3 million (2016: £242.5 million).

Non-current assets were £535.9 million (2016: £560.9 million) and total assets were £929.7 million (2016: £1,039.3 million).

Details of undiscounted contracted maturities of financial liabilities and capital management are set out in note 20 to the financial statements on pages 131 to 139.

Since the balance sheet date, there have been no material subsequent events.

Capital structure is further discussed in note 20 to the financial statements on pages 131 to 139 under the heading Capital management.

Pensions

The Group operates a number of pension schemes throughout the world, the majority of which are of a funded defined benefit type. The largest of these are located in the UK and the USA with the majority of others in continental Europe.

The charge before specific adjusting items incurred in relation to the Group's defined benefit arrangements is summarised in the table below.

	2017 £m	2016 £m
Operating costs:		
– Service cost	**(4.5)**	(4.3)
– Administration costs	**(2.4)**	(2.5)
Total operating costs	**(6.9)**	(6.8)
Net finance charge	**(6.9)**	(7.1)
Total before specific adjusting items	**(13.8)**	(13.9)

The Group pension deficit has decreased by £53.1 million since last year end to £218.0 million on an IAS 19 (revised basis) due to a significant increase in Company contributions and investment returns being higher than expected.

- The UK schemes deficit decreased by £14.5 million to £166.0 million (2016: increase of £63.1 million), as employer contributions and investment returns more than offset changes in assumptions (including a fall in the discount rate from 2.62% to 2.38%).
- The USA schemes deficit decreased by £37.9 million to £11.1 million (2016: decrease of £6.1 million), primarily as a result of an additional, accelerated employer contribution in December 2017 of £28.0 million (more than offsetting a fall in the discount rate from 4.16% to 3.65%).
- The European schemes deficit decreased by £0.8 million to £36.7 million (2016: increase of £9.2 million), largely due to the disposal of the Rotary Business of Morgan Rekofa, principally in Germany (the discount rate remained constant at 1.60%).
- The Rest of World schemes deficit increased by £0.1 million to £4.2 million (2016: increase of £2.4 million), resulting from the increase in the discount rate from 2.90% to 3.20%.

Note 21 to the financial statements, on pages 140 to 150, provides additional information on the Group's pension schemes.

Treasury policies

The following policies were implemented and in place across the Group throughout the year. The manager of each global business unit is required to confirm compliance as part of the year-end process.

Financial Risk Management and Treasury Policy

Group Treasury works within a framework of policies and procedures approved by the Audit Committee. It acts as a service to Morgan Advanced Materials' businesses, not as a profit centre, and manages and controls risk in the treasury environment through the establishment of such procedures. Group Treasury seeks to align treasury goals, objectives and philosophy to those of the Group. It is responsible for all of the Group's funding, liquidity, cash management, interest rate risk, foreign exchange risk and other treasury business. As part of the policies and procedures, there is strict control over the use of financial instruments to hedge foreign currencies and interest rates. Speculative trading in derivatives and other financial instruments is not permitted.

Foreign exchange risks

Due to the international reach of the Group, currency transaction exposures exist. The Group has a policy in place to hedge all material firm commitments and a large proportion of highly probable forecast foreign currency exposures in respect of sales and purchases over the following 12 months, and achieves this through the use of the forward foreign exchange markets. A significant proportion of the forward exchange contracts have maturities of less than one year after the balance sheet date. The Group continues its practice of not hedging income statement translation exposure.

There are exchange control restrictions which affect the ability of a small number of the Group's subsidiaries to transfer funds to the Group. The Group does not believe such restrictions have had or will have any material adverse impact on the Group as a whole or the ability of the Group to meet its cash flow requirements.

Currency translation risks are controlled centrally. To defend against the impact of a permanent reduction in the value of its overseas net assets through currency depreciation, the Group seeks to match the currency of financial liabilities with the currency in which the net assets are denominated. This is achieved by raising funds in different currencies and through the use of hedging instruments such as swaps, and is implemented only to the extent that the Group's gearing covenant under the terms of its loan documents, as well as its facility headroom, are likely to remain comfortably within limits. In this way, the currencies of the Group's financial liabilities become more aligned to the currencies of the trading cash flows which service them.

Interest rate risk

The Group seeks to reduce the volatility in its interest charge caused by rate fluctuations. This is achieved through a combination of fixed rate debt and interest rate swaps. The proportions of fixed and floating rate debt are determined having regard to a number of factors, including prevailing market conditions, interest rate cycle, the Group's interest cover and leverage position and any perceived correlation between business performance and rates.

Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations. The Group is exposed to credit risk on financial instruments such as liquid assets, derivative assets and trade receivables.

Cash balances held by companies representing over 75% of the Group's revenue are managed centrally through a number of pooling arrangements. Credit risk is managed by investing liquid assets and acquiring derivatives in a diversified way from high-credit-quality financial institutions. Counterparties are reviewed through the use of rating agencies, systemic risk considerations, and through regular review of the financial press. Credit risk is further discussed in note 20 to the financial statements on pages 131 to 139.

Capital investment

The Group has well-established formal procedures for the approval of investment in new businesses and for capital expenditure to ensure appropriate senior management review and sign-off.

Borrowing facilities and liquidity

All of the Group's borrowing facilities are arranged by Group Treasury with Morgan Advanced Materials plc as the principal obligor. In a few cases operating subsidiaries have external borrowings but these are supervised and controlled centrally. Group Treasury seeks to obtain certainty of access to funding in the amounts, diversity of maturities and diversity of counterparties as required to support the Group's medium-term financing requirements and to minimise the impact of poor credit market conditions.

The Group's debt and maturity profile is provided in notes 19 and 20 to the financial statements on pages 130 to 139.

Tax risks

The Group follows a tax policy to fulfil local and international tax requirements, maintaining accurate and timely tax compliance whilst seeking to maximise long-term shareholder value. The Group adopts an open and transparent approach to relationships with tax authorities and continues to monitor and adopt new reporting requirements arising from the implementation of the OECD action plan on Base Erosion and Profit Shifting proposals within tax legislation across various jurisdictions.

The tax strategy is aligned to the Group's business strategy and ensures that tax affairs have strong commercial substance. Tax risks are set out in the Risk Management section on page 29.

Directors' statements

Going concern

The Group's business activities, together with the factors likely to affect its future development, performance and position are set out in the Strategic Report on pages 10 to 53. The financial position of the Group, its cash flows, liquidity position and borrowing facilities, are described earlier in this Financial Review. In addition, note 20 to the financial statements, includes the Group's policies and processes for managing financial risk; details of its financial instruments and hedging activities; and details of its exposures to credit risk and liquidity risk.

The Group meets its day-to-day working capital requirements through local banking arrangements underpinned by the Group's £200 million unsecured multi-currency revolving credit facility maturing October 2019. The Group's forecasts and projections, taking account of reasonably possible changes in trading performance and exchange rates, show the Group operating comfortably within its debt financial covenants for the next 12 months.

The current economic climate continues to have an impact on the Group, its customers and its suppliers. The Board fully recognises the challenges that lie ahead but, after making enquiries, and in the absence of any material uncertainties, the Directors have a reasonable expectation that the Company and the Group have adequate resources to continue in operational existence for a period of 18 months from the date of signing of this Annual Report and Accounts. Accordingly, they continue to adopt the going concern basis in preparing the Annual Report and Accounts.

Viability statement

In accordance with provision C.2.2 of the UK Corporate Governance Code, the directors have assessed the viability of the Group over a three-year period, taking into account the Group's current position and the potential impact of the principal risks documented on pages 26 to 29 of the Annual Report. Based on this assessment, the directors confirm that they have a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due over the period to 31 December 2020.

The Directors have determined that a three-year period to 31 December 2020 is an appropriate period over which to provide its viability statement. This is the period reviewed by the Board in our strategic planning process and is considered to be appropriate given the dynamics in the markets in which we operate.

To allow the Directors the make this assessment, a business base case has been built up, initially using a detailed bottom up approach and then applying what the Directors consider to be an appropriate set of assumptions in respect of growth, margins, working capital flows, capital expenditure, dividends and all other matters that could have a significant impact on the financial performance and liquidity of the Group. The resulting base case provides the Directors with an EBITDA*, debt and finance charge headroom relative to current bank covenants.

The Directors have made a robust assessment of the principal risks facing the Group and their potential impact and the adequacy of the headroom relative to a severe but plausible combination of these risks. While the review has considered all the principal risks identified by the Group, including the impacts of re-financing in 2019, the following were focussed on for enhanced stress testing: technological obsolescence; single point exposure, trade compliance and pension funding. The geographical and product diversification of the Group's operations helps minimise the risk of serious business interruption or a catastrophic damage to our reputation. Furthermore, the spread of the Group's end-markets is such that it is not reliant on one particular group of clients or sector.

Whilst this review does not consider all of the possible risks that the Group could face, the Directors consider that the approach adopted and the work performed is reasonable in the circumstances of the inherent uncertainty involved and that it allows the Board to confirm that they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the period to 31 December 2020. In reaching this assessment the Board have assessed that the existing indebtedness can be successfully refinanced within the Viability statement's timeframe.

Definitions and reconciliations of non-GAAP measures to GAAP measures

Reference is made to the following non-GAAP measures throughout this Strategic Report. These measures are shown because the Directors consider they provide useful information to shareholders, including additional insight into ongoing trading and year-on-year comparisons. These non-GAAP measures should be viewed as complementary to, not replacements for, the comparable GAAP measures.

Headline profit and earnings measures

Group headline operating profit is stated before specific adjusting items and amortisation of intangible assets. Specific adjusting items are excluded on the basis that they distort trading performance. Amortisation is excluded as the charge arises primarily on externally acquired intangible assets since the adoption of IFRS and does not therefore reflect all intangible assets consistently.

Earnings before interest, tax and amortisation (EBITA) is stated before specific adjusting items, amortisation of intangible assets, restructuring costs and other items. Segment EBITA is stated before unallocated corporate costs.

2017	Thermal Ceramics £m	Molten Metal Systems £m	Thermal Products Division £m	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	Carbon and Technical Ceramics Division £m	Composites and Defence Systems £m	Segment total £m	Corporate costs[1] £m	Group total £m
Operating profit/(loss)	55.1	6.8	**61.9**	16.2	17.2	23.8	**57.2**	(1.1)	**118.0**	40.1	**158.1**
Add back: specific adjusting items included in perating profit	–	–	**–**	–	–	–	**–**	–	**–**	(45.7)	**(45.7)**
Add back: amortisation of intangible assets	1.8	0.2	**2.0**	0.5	0.3	4.5	**5.3**	–	**7.3**	–	**7.3**
Group headline operating profit											**119.7**
Add back: restructuring costs and other items	–	–	**–**	–	–	–	**–**	–	**–**	–	**–**
Group EBITA											**119.7**
Corporate costs[1]										5.6	**5.6**
Divisional EBITA/global business unit EBITA	56.9	7.0	**63.9**	16.7	17.5	28.3	**62.5**	(1.1)	**125.3**		

1. Corporate costs consist of the cost of the central head office and additionally in 2016 include restructuring costs.

2016	Thermal Ceramics £m	Molten Metal Systems £m	Thermal Products Division £m	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	Carbon and Technical Ceramics Division £m	Composites and Defence Systems £m	Segment total £m	Corporate costs[1] £m	Group total £m
Operating profit/(loss)	53.6	6.6	**60.2**	19.2	14.0	22.4	**55.6**	(8.7)	**107.1**	0.2	**107.3**
Add back: specific adjusting items included in operating profit	–	–	**–**	–	–	–	**–**	8.5	**8.5**	(6.8)	**1.7**
Add back: amortisation of intangible assets	1.5	0.1	**1.6**	0.4	0.3	4.2	**4.9**	1.4	**7.9**	–	**7.9**
Group headline operating profit											**116.9**
Add back: restructuring costs and other items	(0.1)	–	**(0.1)**	0.1	(0.1)	–	**–**	(0.1)	**(0.2)**	1.2	**1.0**
Group EBITA											**117.9**
Corporate costs[1]										5.4	**5.4**
Divisional EBITA/global business unit EBITA	55.0	6.7	**61.7**	19.7	14.2	26.6	**60.5**	1.1	**123.3**		

1. Corporate costs consist of the cost of the central head office and additionally in 2016 include restructuring costs.

Definitions and reconciliations of non-GAAP measures to GAAP measures continued

Group organic growth

Group organic growth is the growth of the business excluding the impacts of acquisitions, divestments and foreign currency impacts. This measure is used as it allows revenue and EBITA to be compared on a like for like basis.

Year-on-year movements in Segment revenue

	Thermal Ceramics £m	Molten Metal Systems £m	**Thermal Products Division £m**	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	**Carbon and Technical Ceramics Division £m**	Composites and Defence Systems £m	**Segment total £m**
2016 Revenue	**413.3**	**43.5**	**456.8**	**156.2**	**97.7**	**248.1**	**502.0**	**30.4**	**989.2**
Impact of foreign currency movements	19.9	3.0	**22.9**	8.4	4.4	11.0	**23.8**	0.1	**46.8**
Impacts of disposals	–	–	**–**	(12.2)	–	(16.8)	**(29.0)**	–	**(29.0)**
Impact of underlying business	(7.0)	0.4	**(6.6)**	4.7	11.1	14.8	**30.6**	(9.5)	**14.5**
Underlying %	(1.6)%	0.9%	**(1.4)%**	3.1%	10.9%	6.1%	**6.2%**	(31.1%)	**1.4%**
2017 Revenue	**426.2**	**46.9**	**473.1**	**157.1**	**113.2**	**257.1**	**527.4**	**21.0**	**1021.5**

Year-on-year movements in Segment and Group EBITA

	Thermal Ceramics 2016 versus 2017 £m	Molten Metal Systems 2016 versus 2017 £m	**Thermal Products Division 2016 versus 2017 £m**	Electrical Carbon 2016 versus 2017 £m	Seals and Bearings 2016 versus 2017 £m	Technical Ceramics 2016 versus 2017 £m	**Carbon and Technical Ceramics Division 2016 versus 2017 £m**	Composites and Defence Systems 2016 versus 2017 £m	**Segment total 2016 versus 2017 £m**	Corporate costs 2016 versus 2017 £m	**Group total 2016 versus 2017 £m**
2016 Segment and Group EBITA	**55.0**	**6.7**	**61.7**	**19.7**	**14.2**	**26.6**	**60.5**	**1.1**	**123.3**	**(6.4)**	**116.9**
Impact of foreign currency movements	2.5	0.6	**3.1**	1.5	0.8	1.4	**3.7**	–	**6.8**	–	**6.8**
Impacts of disposals	–	–	**–**	(3.5)	–	(4.6)	**(8.1)**	–	**(8.1)**	–	**(8.1)**
Impact of underlying business	(0.6)	(0.3)	**(0.9)**	(1.0)	2.5	4.9	**6.4**	(2.2)	**3.3**	0.8	**4.1**
Underlying %	(1.0)%	(4.1)%	**(1.4)%**	(5.6)%	16.7%	20.9%	**11.4%**	–	**2.7%**	–	**3.5%**
2017 Segment and Group EBITA	**56.9**	**7.0**	**63.9**	**16.7**	**17.5**	**28.3**	**62.5**	**(1.1)**	**125.3**	**(5.6)**	**119.7**

Group EBITDA

Group EBITDA is defined as operating profit before specific adjusting items, restructuring costs, other items, depreciation and amortisation of intangible assets.

The Group uses this measure as it is a key metric in covenants over debt facilities.

A reconciliation of operating profit to Group EBITDA is as follows:

	2017 £m	2016 £m
Operating profit:	**158.1**	107.3
Add back: specific adjusting items included in operating profit	**(45.7)**	1.7
Add back: restructuring costs and other items	**–**	1.0
Add back: depreciation	**30.6**	29.5
Add back: amortisation of intangible assets	**7.3**	7.9
Group EBITDA	**150.3**	147.4

Cash flow from operations and free cash flow before acquisitions and dividends

Cash flow from operations excludes the cash flows associated with restructuring activities and is shown because it illustrates the timing of the outflows relating to restructuring charges that may be incurred over more than one reporting period.

Free cash flow before acquisitions is defined as cash generated from operations less net capital expenditure, net interest paid and tax paid.

The Group discloses free cash flow before acquisitions and disposals as this provides readers of the financial statements with a measure of the cash flows from the business before corporate-level cash flows (acquisitions and dividends).

A reconciliation of cash generated from operations to cash flow from operations and free cash flow before acquisitions and dividends is as follows:

	2017 £m	2016 £m
Cash generated from operations[1]	**101.5**	121.7
Add back: cash flows from restructuring costs and other items	**–**	6.6
Cash flow from operations	**101.5**	128.3
Net capital expenditure	**(34.4)**	(38.4)
Net interest paid	**(16.6)**	(13.1)
Tax paid	**(24.5)**	(22.2)
Restructuring costs and other items	**–**	(6.6)
Free cash flow before acquisitions and dividends	**26.0**	48.0
Free cash flow before acquisitions, dividends and one-off US pension payment	**54.0**	48.0

1. In 2017 cash generated from operations includes a one-off payment to the US pension scheme of £28.0 million, see Note 21 to the financial statements on pages 140 to 151. Free cash flow is presented both before and after this payment.

Net debt

Net debt is defined as interest-bearing loans and borrowings and bank overdrafts less cash and cash equivalents. The Group discloses this metric as it is a key metric in covenants over debt facilities.

	2017 £m	2016 £m
Cash and cash equivalents	**50.4**	122.4
Non-current interest-bearing loans and borrowings	**(192.7)**	(204.0)
Current interest-bearing loans and borrowings and bank overdrafts	**(39.0)**	(160.9)
Net debt	**(181.3)**	(242.5)

Constant-currency revenue and Group headline operating profit

Constant-currency revenue and Group headline operating profit are derived by translating the prior year results at current-year average exchange rates. These measures are used as they allow revenue to be compared excluding the impact of foreign exchange rates.

Page 37 provides further information on the principal foreign exchange rates used in the translation of the Group's results to constant-currency at average exchange rates. The potential impact of foreign exchange movements is provided in note 20 to the financial statements on pages 131 to 139.

Return on invested capital

Return on invested capital (ROIC) is defined as Group headline operating profit (operating profit excluding specific adjusting items and amortisation of intangible assets) divided by the 12-month average adjusted net assets (third-party working capital, property, plant and equipment, land and buildings, intangible assets and other balance sheet items).

Since 1 January 2016 ROIC has been used by the Group instead of ROCE to assess the return obtained from the Group's asset base.

	2017 £m	2016 £m
Operating profit	**158.1**	107.3
Add back: specific adjusting items included in operating profit	**(45.7)**	1.7
Add back: amortisation of intangible assets	**7.3**	7.9
Group headline operating profit	**119.7**	116.9
12-month average adjusted net assets:		
Third-party working capital	**172.4**	168.2
Property, plant and equipment	**176.6**	175.7
Land and buildings	**115.3**	105.5
Intangible assets	**222.4**	240.8
Other assets (net)	**16.4**	9.2
12-month average adjusted net assets	**703.1**	699.4
ROIC	**17.0%**	16.7%

Definitions and reconciliations of non-GAAP measures to GAAP measures continued

Return on operating capital employed

Return on operating capital employed (ROCE) is defined as Group headline operating profit (operating profit excluding specific adjusting items and amortisation of intangible assets) divided by the sum of working capital as defined below and the net book value of property, plant and equipment and land and buildings. Goodwill and other intangible assets are excluded.

The Group uses ROIC as its key measure of return from the Group's asset base. ROCE has been provided as it continues to be a measure for pre-existing Long-Term Incentive Plan awards, as disclosed in the Remuneration Report on pages 70 to 89.

	2017 £m	2016 £m
Operating profit	158.1	107.3
Add back: specific adjusting items included in operating profit	–	1.7
Add back: amortisation of intangible assets	7.3	7.9
Group headline operating profit	**119.7**	116.9
Inventories	141.8	148.2
Trade and other receivables	194.2	205.7
Net derivative financial liabilities	(0.4)	(9.2)
Trade and other payables	(193.7)	(192.5)
Plus deferred consideration, third-party dividends payable and other sundry items	0.1	0.5
Working capital as used in the calculation of ROCE	**142.8**	152.7
Property, plant and equipment	**115.9**	114.7
Land and buildings	**181.9**	189.0
	440.6	456.4
ROCE	**27.2%**	25.6%

Headline earnings per share

Headline earnings per share is defined as operating profit adjusted to exclude specific adjusting items and amortisation of intangible assets, plus share of profit of associate less net financing costs, income tax expense and non-controlling interests, divided by the weighted average number of Ordinary shares during the period. This measure of earnings is shown because the Directors consider it provides a better indication of headline performance.

Whilst amortisation of intangible assets is a recurring charge it is excluded from these measures on the basis that it primarily arises on externally acquired intangible assets and therefore does not reflect consistently the benefit that all of Morgan's businesses realise from their intangible assets, which may not be recognised separately.

Further information on earnings per share can be found in note 9 to the financial statements on page 120.

Book-to-bill ratio

The book-to-bill ratio is the ratio of orders received to sales in the period.

Corporate responsibility

Corporate responsibility is integral to the Morgan Group; it means a commitment to behaving with integrity and having a positive impact on employees, stakeholders and the communities in which it works.

Morgan strategy

This firm commitment to doing business in the right way is integral to the Group in continuing to be one of the world's very best advanced materials companies, where corporate responsibility is a differentiator. The Group's Responsible Business Programme (RBP), Environment, health and safety (EHS) programme and the approach to Morgan's people, all support the aim of creating long-term sustainable shareholder value.

Tone from the top

The Board is ultimately accountable for corporate responsibility and receives regular reports on the RBP, the EHS programme and global talent management initiatives.

The senior management team recognises the need to lead by example. The Executive Committee takes the lead on doing business in the right way. It is supported by the Divisional and global business unit executive teams together with functional heads with specific responsibility for environment, health and safety, legal compliance and human resources.

Tone from the top has been central to the message across the Group in the year, through the implementation of strategy, its ethical and safe business approach, leadership briefings on RBP and EHS, as well as regular training sessions across the Group.

The Responsible Business Programme: doing business the right way

At Morgan we understand that our reputation and name are key assets which take a long time to build but could be quickly lost through corrupt or unethical behaviour. The RBP is the Group-wide ethics and compliance programme in place to protect the Group, providing a framework underpinning the Group's commitment to doing business in the right way. The core elements of the RBP are policies and guidance, training and education, risk assessments and due diligence, and monitoring and assurance delivered through certifications, internal audit and site compliance visits.

Policies

RBP policies are available to all employees in key languages, together with related manuals and guidelines. These require employees to operate in accordance not only with applicable laws and regulations, but also in line with internal rules and reporting requirements relating to areas such as ethical business behaviour, trade compliance, hospitality, gifts, donations and sponsorships. These policies also apply, to the extent appropriate, to Morgan's business partners including agents, joint venture partners and third-party representatives.

Training and education

Raising awareness of, and educating employees on, Group compliance policies and the applicable laws and regulations is a fundamental part of the RBP. Group-wide induction training is given to all employees in management positions or who interact with third parties ('relevant employees') and includes e-learning modules on human rights, anti-bribery and corruption, anti-competitive practice and contract risk awareness. Additional annual training in 2017 included face-to-face training by Group compliance staff at selected sites.

Risk assessments & due diligence

Annual risk assessments across the Group help to identify those businesses which have a higher risk of a compliance breach, often associated with the geographic territories they operate in. These businesses receive additional focus and support as necessary.

At Morgan we are mindful that organisations may be held liable for acts of corruption by their third-party intermediaries (including agents, distributors, customs agents, freight forwarders, freight companies). To address and mitigate this potential exposure, during 2017 the Group completed due diligence reviews of all of its third party intermediaries. These took the form of online reviews as well as questionnaires and associated documentation requests with higher levels of diligence geared to those with increased levels of corruption risk.

Monitoring and assurance

Divisional and global business unit Presidents and all functional heads are required on an annual basis to certify that the businesses/functions they are responsible for have implemented and complied in full with Group policies or declared any exceptions. This certification forms an integral part of the Group's system of internal controls. No material exceptions were declared in respect of 2017.

Morgan's internal audit function monitors adherence to key RBP processes including completion of induction training and compliance with key policies. Internal audit also ensures that the ethics hotline and its availability are adequately promoted at site level.

In 2017, Group compliance staff visited a number of sites and met with management and local employees to discuss and assess compliance processes and issues.

Ethics hotline

The ethics hotline, operated by the independent third-party company Expolink, enables employees and others who are aware of, or suspect, misconduct, illegal activities, fraud, abuse of Group assets or violations of any Group policy to report these confidentially without fear of retribution should they feel they cannot use a local channel. The hotline includes local free-phone numbers in each of the countries in which the Group operates, with real-time translators available as necessary.

Issues raised through the ethics hotline, or via other channels, are followed up by the internal audit, Group compliance, and human resources functions, or members of senior management teams as appropriate. Further investigation may be conducted through internal audit. The Audit Committee monitors and reviews a summary of the results generated.

Human rights

As an international business, the Group supports the UN's Universal Declaration of Human Rights, and the Group's Human Rights Policy applies to all our businesses worldwide. The Policy is available on our website and covers child labour, forced labour, health and safety, freedom of association, discrimination, discipline, working hours and compensation. The Group's Modern Slavery Act Transparency Statement, which is published annually on our website, details action taken to support the elimination of modern slavery and human trafficking.

Group compliance plans for 2018

During 2018, the Group plans to introduce a Code of Business Conduct to strengthen the framework for its stated Leadership behaviour of 'working ethically and safely'. This will be supported by an updated training programme, both online and face to face as needed, to assist in the transition to the Code, and we will pay particular attention to assisting local compliance officers in their delivery of efficient and effective site-level processes and controls.

Over the coming year the Group will also continue to review the effectiveness of the ethics hotline, to ensure it is fully achieving its objectives, update its Modern Slavery Act Transparency Statement, and publish detailed plans to further improve its assurance of compliance.

Corporate responsibility continued

Environment, health and safety

Morgan is committed to protecting the health and safety of employees and others affected by its operations. It seeks to minimise the environmental impacts of its activities and maximise the positive effects of its products and services through its environmental, health and safety (EHS) programmes.

Morgan is committed to operating in a manner that achieves high standards of health and safety for employees and others affected by its operations.

This commitment is reflected in the Group's core health and safety values set out below and which are available in 17 languages across the Group:

- We are committed to creating a culture and environment that is 'zero harm' with no accidents or illness due to our activities.
- We encourage and expect our employees and contractors to be passionate about safety.
- We are dedicated to creating a positive safety culture based on openness, transparency and responsibility.
- We support a safe working culture through investment and training.
- We engage with our people to continuously improve safety knowledge, reporting and performance through our commitment to Morgan's 'thinkSAFE' programme.

The Group is also committed to minimising the impact of its business on the environment and maximising the positive environmental benefits of its products. Examples of Morgan's products which help enhance the environmental performance and efficiency of the Group's customers are included in pages 18 to 19 of this Report.

Under the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013, the Group is required to report its annual greenhouse gas emissions for the year in its Directors' Report. This information is shown on page 51 and includes CO_2 emissions due to energy use, which are further analysed in this section, together with other sources of greenhouse gases emissions.

2017 highlights

- In 2017 the total number of accidents was 678, (2016: 767), however a higher proportion of these were lost-time cases than in 2016. (LTA 2017: 75, 2016: 53, 2015: 91)
- Environmental performance was mixed in the year. Whilst the Group exceeded its water intensity and recycling targets it did not achieve its waste intensity or its CO_2e[1] and energy intensity targets. The Group achieved a 4.9% reduction in water use intensity and a 0.9% reduction in waste intensity with absolute reductions off-set by lower revenue at constant-currency. The proportion of total waste recycled improved by 11%. CO_2e intensity increased by 1.6% and energy intensity by 2.3%.
- Morgan 'thinkSAFE', the Group's safety performance improvement programme, focused on machine guarding, 'Take 5 for Safety' (5S), Bright, clean and 'thinkSAFE' and industrial vehicle safety.
- At the end of 2017 the Group adopted a new, Board approved safety improvement plan for 2018 and beyond which looks to refresh 'thinkSAFE' and strengthen Group safety capabilities.
- Morgan participated in the Carbon Disclosure Project (CDP) 2017 and achieved a score of B which places the Group in the top third of the CDP's FTSE 350 Industrial sector. This ranking testifies to the Group's climate change and energy related disclosure and performance.

1. CO_2e. Carbon Dioxide Equivalent – the amount of carbon dioxide or the amount of non-CO_2 greenhouse gas with the equivalent global warming potential.

EHS Policy

Morgan's EHS Policy sets out the Group's commitment to protect and enhance the environment and to the health and safety of all those affected by our operations. The Policy is regularly reviewed and is communicated across all sites within the Group. The Policy applies to all businesses worldwide and is published on the Group's website and in the annual EHS Report. It forms the basis for Executive Committee and management oversight of the implementation of the Group's EHS programmes.

EHS Policy governance

Governance of Morgan's EHS Policy is achieved through performance monitoring, risk assessment and the management and mitigation of identified risks to help provide continuous improvement in EHS performance in support of the Group's strategic priorities.

The Group is committed to providing effective leadership in pursuit of an injury-free and environmentally responsible work place. The Chief Executive Officer and the operational management team are responsible for EHS performance. The Group's Director, Environment, Health and Safety is responsible for Group direction and the oversight of the Group's EHS programmes. There are EHS leaders in each of the global business units, and each site has a single point of accountability. These global specialists reports to their respective management team and are responsible for improving the standards of EHS management and performance across the Group's businesses.

Morgan's Group level EHS management processes include:

- → Monthly review of performance and progress in the implementation of our improvement plans by the Executive Committee and business leaders.
- → Regular review of EHS performance by the Board.
- → The EHS Compliance Audit Programme conducted against the Morgan EHS Framework with a focus on high-risk items. The programme also covers the EHS management systems and the EHS KPIs reported by each site and helps ensure compliance with local regulations and good management practice. All the Group's manufacturing facilities are reviewed on a three-year rolling cycle. Accordingly, 24 sites were audited during 2017. The audit reports are reviewed by the Director, Environment, Health and Safety and by members of the Executive Committee and Divisional Executive teams. Action items are tracked through a formal follow-up process.
- → Formal training is an integral part of the implementation of the Group's EHS Policy. This is undertaken at a regional level and tailored to business-specific risks and opportunities, with Group-level support and oversight.
- → External assurance of selected EHS data by ERM Certification and Verification Services (ERM CVS). The Assurance Report from ERM CVS is on page 50.

Taking site openings and closures into account, in 2017 environmental management systems were in place at 90 sites worldwide, including 38 sites certified to ISO 14001. Worldwide, 102 sites have health and safety management systems in place, with 15 sites certified to, or working towards, OHSAS 18001.

EHS Policy effectiveness

The Group monitors the effectiveness of its EHS Policy through its external EHS compliance audit programme, its internal EHS audit programme, review of performance against a series of Group-wide KPIs, its external assurance programme and by participating in a number of external initiatives.

The charts on pages 47 to 51 represent the Group's EHS performance, covering all production sites during the year.

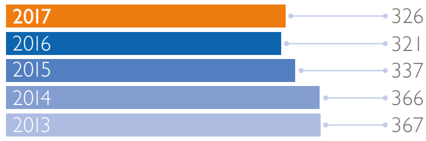
The independent external assurance performed by ERM CVS covered the Group's lost-time accident frequency rate, CO_2e intensity, energy intensity, waste intensity, water intensity and the waste recycling rate. The Assurance Report from ERM CVS is set out on page 50.

The Group also participates in external initiatives that help to benchmark the effectiveness of and progress against its EHS Policy. These include the Carbon Disclosure Project (CDP) in respect of the Group's climate-change-related strategies, risks, management and performance. In 2017, Morgan achieved a score of B placing it in the top third of the CDP's FTSE 350 Industrial sector. This reflects the Group's performance, and the depth and quality of climate-change data disclosed to investors and the global marketplace through the CDP.

The Group has also made filings in respect of the Group's UK facilities under the UK government's Carbon Reduction Commitment (Energy Efficiency) Scheme.

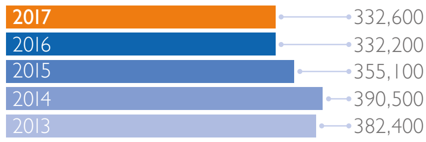
CO_2e[5] intensity due to energy use[1,2]

Tonnes CO_2e/£m revenue[3]



CO_2e[5] due to energy use[1,2]

Tonnes[3]

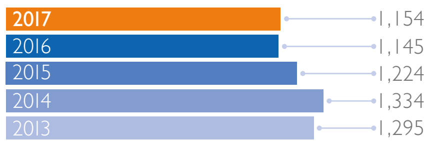


Energy intensity[1,4]

MWh/£m revenue[3]

Energy use[1,4]

GWh[3]

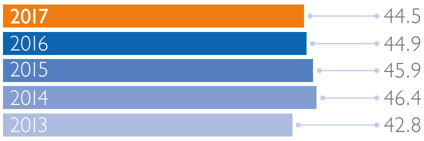


1. The 2017 CO_2e intensity and energy intensity information has been subject to assurance by ERM CVS. For further details of the assurance provided see the Independent Assurance Report on page 50. Further details of the 2016, 2015, 2014 and 2013 assurance are included in the Independent Assurance Reports on page 47 of the 2016 Annual Report; page 32 of the 2015 Annual Report; page 30 of the 2014 Annual Report; page 31 of the 2013 Annual Report.
2. Scope 1 CO_2e emissions from fossil fuel usage and Scope 2 CO_2 emissions using market-based methodology and country-specific electricity factors as CO_2e factors are not consistently available for electricity use in all countries.
3. Calculated on a constant-currency revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.
4. Energy from all sources.
5. CO_2e. Carbon Dioxide Equivalent – the amount of carbon dioxide or the amount of non-CO_2 greenhouse gas with the equivalent global warming potential.

Corporate responsibility continued

Waste intensity[1,3]

Tonnes waste/£m revenue[2]

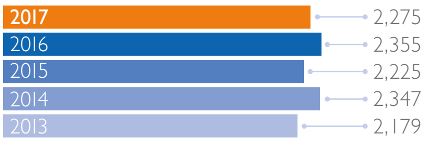


Waste[1,3]

Tonnes[2]

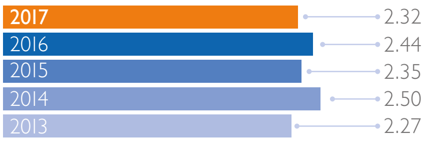
Water intensity[1,4]

m^3/£m revenue[2]



Water use[1,4]

million m^3 [2]



1. Morgan's 2017 water intensity, waste intensity and waste recycling rate information has been subject to assurance by ERM CVS. For further details of the assurance provided see the Independent Assurance Report on page 50. Further details of the 2016, 2015, 2014 and 2013 assurance are included in the Independent Assurance Reports on page 47 of the 2016 Annual Report; page 32 of the 2015 Annual Report; page 30 of the 2014 Annual Report; page 31 of the 2013 Annual Report.
2. Calculated on a constant-currency revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.
3. Hazardous and non-hazardous waste, including recycled material.
4. Water from all sources, including process, irrigation and sanitary use.

Environmental performance

The Group is committed to environmental responsibility and works to minimise the impact of its business on the environment and to maximise the positive environmental benefit of its products.

The Group monitors the material impacts of its operations on the environment as measured by its Scope 1 CO_2e and Scope 2 CO_2 emissions, its energy, waste and water intensity per £ million of revenue and the proportion of total waste which is recycled.

Morgan sets Group-wide targets for improvement in environmental performance, and each production site also sets specific internal targets which are reviewed as part of the annual budget process to ensure they are aligned with and contribute to the Group's targets. Further details of the Group's EHS targets and objectives for the coming year will be included in our 2017 EHS Report which is scheduled for publication on the Group website in mid-2018.

Throughout 2017, the Group undertook a series of projects and environmental programmes focused on those sites identified as having the greatest environmental impact. These are subject to regular review and follow-up by the Executive Committee to ensure key opportunities and risks are addressed. In addition, Divisional programmes covering topics such as energy awareness help to enhance business and environmental performance and competitiveness.

These programmes helped the Group to achieve its targets to reduce water and waste intensity and to increase recycling in the year.

In absolute terms, the 2017 CO_2e emissions due to energy use were 332,600 tonnes, in line with 2016. Absolute energy use in 2017 was also similar to 2016. Based on revenue at constant-currency CO_2e intensity increased by 1.6% compared to prior year. Energy intensity in 2017 increased by 2.3% compared to the prior year.

The five-year performance charts reflect reductions in energy and CO_2e intensity from 2013. The Group continues to work on a number of production improvement projects which include energy-efficiency programmes. These are aimed at driving year-on-year performance improvement in energy and CO_2e intensity.

In 2017 total waste reported was 45,500 tonnes, a decrease of 2.2% compared to 2016. Waste intensity reduced by 0.9% compared to 2016. Morgan did not achieve its 2.5% waste intensity reduction target for the year.

The proportion of total waste which was recycled in 2017 was 56%, an improvement of 11% compared to 2016. Morgan exceeded its target to increase the proportion of total waste which is recycled by 1% year-on-year. A significant part of the improvement was due to the identification of additional opportunities for third parties to re-use waste streams at the Group's site in Augusta, Georgia, USA.

Total water use in 2017 was 2.32 million m^3, a reduction of 4.9% compared to 2016. Water use intensity at constant-currency reduced by 3.4% compared with 2016, exceeding the target to reduce water intensity by 2.5% in the year. Many sites around the world and particularly in Asia, where water is a limited resource, continued to deliver strong improvements in water use over the period.

2018 priorities for environmental performance:

- Explore opportunities to further the Group environmental strategy through the development of a 'Morgan thinkGREEN' programme.
- Continue the focus on environmental improvement projects at sites with the biggest environmental impact.
- Extend the benchmarking of sites with similar production technologies to encourage implementation of best practice and improvement plans.
- Focus on robust ownership and delivery of environmental targets at site, business and Divisional levels.
- Review and develop opportunities to increase the use of renewable energy.
- Report Morgan's carbon footprint on the basis of market and location-based methods to further reflect efforts to de-carbonise our business.

Health and safety performance

With the long-term aim of an injury-free workplace, Morgan is committed to its health and safety core values and to conducting all its activities in a manner that achieves high standards of health and safety for all employees and stakeholders. The Group's long-term objective is 'zero harm'. We aim to deliver year-on-year improvements in performance as we progress towards this objective.

The Group's health and safety policies are clear and communicated throughout the Group. Health and safety metrics receive a high degree of focus at all levels of the business. Policy statements are supported by site-level assessment and monitoring of risks.

In 2017, the Group's accident prevention and training programmes focused on reducing accident occurrence through an emphasis on leading indicators supported by behavioural safety initiatives and training as part of the 'thinkSAFE' programme. The five-year health and safety charts and the performance review in this report cover the Group's 2017 health and safety performance.

The Group's health and safety KPIs include accident frequencies, causes and related lost working time. These are reviewed monthly to monitor the effectiveness of the Group's health and safety policies and related systems. The independent external assurance performed by ERM CVS covered the Group's lost-time accident (LTA) frequency rate.

Aggregating manufacturing sites and sales offices, the Group has over 130 locations worldwide, 70% reported no LTAs during the year, with other sites improving on their accident frequency rates from 2016.

The Group's total accident frequency per 100,000 working hours was 3.49, a reduction of 10.4% on 2016, LTA frequency was 0.39 per 100,000 working hours (2016: 0.27, 2015: 0.45) with a total of 75 LTAs reported (2016: 53, 2015: 91).

Whilst total accident frequency decreased compared to the prior year the Group's overall 2017 LTA performance was behind that achieved in 2016. In the first quarter 19 Morgan employees from around the world were involved in a road traffic accident while travelling to a management meeting at the Thermal Ceramics site in Augusta, GA, USA. The vehicles in which the Morgan employees were travelling were stationary whilst at a red traffic light when they were struck from behind by a third-party travelling at speed. Eighteen Morgan employees were injured with 11 suffering lost-time accidents, which resulted in 532 working days lost in the year.

Reported lost time due to accidents and work-related illnesses as a percentage of working time increased to 0.13% in 2017 (2016: 0.06%; 2015: 0.08%). The number of days lost during 2017 was 3,040 (2016: 1,422, 2015: 2,135). The average number of days lost in 2017 per LTA reported in the year increased to 40.5 days (2016: 26.8; 2015: 23.5).

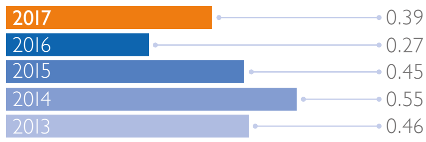
In the fourth quarter of the year the Board approved a new safety improvement plan and strategy. The programme will see the refresh of the Morgan 'thinkSAFE' standard with additional training, further employee engagement on safety and clearer local communication of progress. The improvement plan will be reinforced with a review of leading and lagging indicators and improved incident management combined with a review of skills, competencies and resources.

2018 priorities for health and safety:

- Implement the new safety improvement plan and strategy for 2018 onwards.
- Strengthen and refresh 'thinkSAFE' as the platform for safety performance improvement Group-wide with a particular focus on employee engagement and interaction through each site's safety corner.
- Drive a consistent approach to safety at all sites through 'thinkSAFE'.
- Update the Group's safety framework to ensure compliance and to focus on key risk identification and management taking account of scale and opportunities for simplification.
- Increase the use of safety data and information to support performance improvement, to inform decision-making and to ensure accountability.
- Develop a Safety Technical Leadership Committee to help implement safety strategy and to provide tactical support to site management to embed the culture of zero-harm.
- Focus on reducing the time lost by each lost-time accident through appropriate return-to-work initiatives.

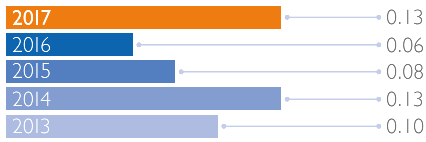
Lost-time accident frequency[1, 2]

LTAs/100k hours worked[1]



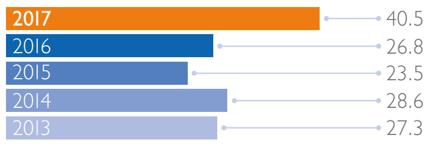
Health and safety-related lost time

% of total working time



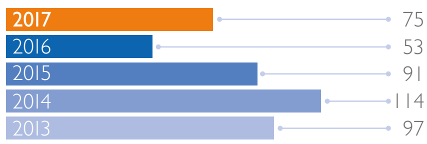
Lost-time per LTA[1,2]

Days per LTA[3]



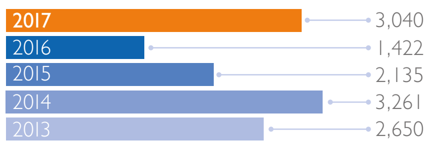
Lost-time accidents[2]

Number of LTAs[1]



Health and safety-related lost time

Days lost due to LTAs[1]



1. Morgan's 2017 lost-time accident frequency information has been subject to assurance by ERM CVS. For further details of the assurance provided see the Independent Assurance Report on page 50. Further details of the 2016, 2015, 2014 and 2013 assurance are included in the Independent Assurance Reports on page 47 of the 2016 Annual Report; page 32 of the 2015 Annual Report; page 30 of the 2014 Annual Report; page 31 of the 2013 Annual Report.
2. A lost-time accident (LTA) is defined as an accident or work-related illness which results in one or more days' lost time.
3. Total time lost due to health and safety in the year divided by the number of lost time accidents reported in the year.

Independent assurance report

Independent Assurance Statement to Morgan Advanced Materials plc

ERM Certification and Verification Services (ERM CVS) was engaged by Morgan Advanced Materials plc (Morgan) to provide limited assurance in relation to specified 2017 EHS performance data in Morgan's Annual Report for the year ended 31 December 2017 ('the Report') as set out below.

Engagement summary

Scope of our assurance engagement	Whether the following EHS performance data for the year ended 31 December 2017 are fairly presented, in all material respects, with the reporting criteria: → GHG: Total Scope 1 and Scope 2 emissions due to energy use in tonnes CO_2e; CO_2e intensity (tonnes CO_2e/£m revenue) → Total Energy use (GWh) and Energy intensity (MWh/£m revenue) → Water use (million m^3) and Water intensity (million m^3/£m revenue) → Waste (tonnes) and Waste intensity (tonnes/£m revenue) → Recycling rate; and → Safety: Number of lost time accidents (LTAs) and Lost Time Accident Frequency (LTAs/100K hours worked).
Reporting criteria	Morgan's own internal reporting criteria and definitions are set out in the Environment, Health and Safety section of the corporate website: **www.morganadvancedmaterials.com/media/4632/mgam-ehs-reporting-criteria-2016.pdf**
Assurance standard	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised).
Assurance level	Limited assurance.
Respective responsibilities	Morgan is responsible for preparing the data and for its correct presentation in reporting to third parties, including disclosure of the reporting criteria and boundary. ERM CVS's responsibility is to provide conclusions on the agreed scope based on the assurance activities performed and exercising our professional judgement.

Our conclusions

Based on our activities, nothing has come to our attention to indicate that the EHS performance data for year ended 31 December 2017, as listed above, are not fairly presented, in all material respects, with the reporting criteria.

Our assurance activities

Our objective was to assess whether the selected data are reported in accordance with the principles of completeness, comparability (across the organisation) and accuracy (including calculations, use of appropriate conversion factors and consolidation). We planned and performed our work to obtain all the information and explanations that we believe were necessary to provide a basis for our assurance conclusions.

A multi-disciplinary team of EHS and assurance specialists performed the following activities:

→ Interviewed relevant staff to understand and evaluate the data management systems and processes (including IT systems and internal review processes) used for collecting and reporting the selected data.

→ Reviewed of the internal indicator definitions and conversion factors.

→ Visited four sites (USA, India, China and Germany) to review local reporting processes and consistency of reported annual data with selected underlying source data for each indicator. We interviewed relevant staff, reviewed site data capture and reporting methods, checked calculations and assessed the local internal quality and assurance processes.

→ An analytical review of the data from all sites and a check on the completeness and accuracy of the corporate data consolidation.

→ Year-end assurance activities at corporate level including the results of internal review procedures and the accuracy of the consolidation of the data for the selected indicators from the site data.

The limitations of our engagement

The reliability of the assured data is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information.
It is important to understand our assurance conclusions in this context.

Jennifer Iansen-Rogers
Head of Corporate Assurance Services
27 February 2018

ERM Certification and Verification Services, London
www.ermcvs.com; email: **post@ermcvs.com**

ERMCVS Informed Assured

ERM CVS is a member of the ERM Group. The work that ERM CVS conducts for clients is solely related to independent assurance activities and auditor training. Our processes are designed and implemented to ensure that the work we undertake with clients is free from bias and conflict of interest. ERM CVS and the ERM staff that have undertaken this engagement work have provided no consultancy related services to Morgan Advanced Materials plc in any respect.

Greenhouse gas emissions

Under the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 ('the Regulations') the Group is required to report its annual greenhouse gas (GHG) emissions in tonnes of carbon dioxide equivalent (CO_2e) in its Directors' Report.

Morgan has published information on its emissions due to the combustion of fossil fuels and the electricity purchased by the Company for its own use in its annual EHS Report since 2004 and in its Annual Report since 2005. Since 2011 the Group's CO_2e emissions due to energy consumption have been externally assured (see the 2017 Assurance Report from ERM CVS on page 50). The Group has participated in the Carbon Disclosure Project (CDP) since 2006 and in 2017 achieved a score of B, reflecting the Group's performance and the depth and quality of climate change data that Morgan has disclosed to investors and the global marketplace through the CDP.

The Regulations require the Group to disclose its emissions due to the combustion of biomass and due to process and fugitive emissions which are in addition to the emissions due to energy use reported on page 47 of this Annual Report. In the table below CO_2e is a standard unit for measuring the amount of CO_2 and the amount of non-CO_2 GHG with the equivalent global warming potential. Data is rounded to the nearest 100 tonnes of CO_2e.

As required under the Regulations, the above Report includes the material emission sources from the operations and activities covered by the Group's financial statements. As noted, the Report exclude emissions from Company-owned and leased vehicles and emissions relating to steam supplied by third parties to two sites in China and one in Europe, which are in total estimated to account for less than 1% of total emissions. The Directors consider that these sources of emissions are not material to the total of the Group's emissions.

The Group's reporting methodology is based on the internationally-recognised Greenhouse Gas Protocol. It uses emission factors for standard grid electricity by country and year from the International Energy Agency together with other factors published by the UK Department for Environment, Food and Rural Affairs to calculate the CO_2e emissions included in this Report.

	2017 Tonnes CO_2e	2016 Tonnes CO_2e
Emissions from combustion of fuels and operation of facilities[1]		
Combustion of fossil fuels[2]	**129,600**	126,500
Operation of facilities, including process emissions[3]	**34,700**	29,100
Electricity, heat, steam and cooling purchased for own consumption[4]		
Purchased electricity[2,3]	**203,000**	205,700
Intensity measurement[5]		
Tonnes CO_2e due to fossil fuels and purchased electricity per £ million revenue[2]	**326**	321
Tonnes GHGs per £ million revenue	**360**	349

CO_2e is the amount of CO_2 and the amount of non-CO_2 greenhouse gas with the equivalent global warming potential.

Data is rounded to the nearest 100 tonnes of CO_2e.

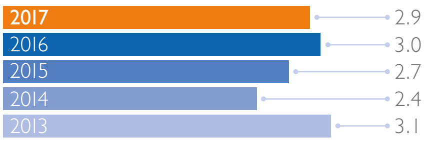
1. Excludes emissions from Company-owned and leased vehicles estimated at circa 2,100 tonnes CO_2e in 2017 (2016: 2,200 tonnes CO_2e).
2. The 2017 information regarding CO_2e due to energy use has been subject to assurance by ERM CVS. See the Independent Assurance Report on page 50 of this Annual Report. See page 47 of the 2016 Annual Report for further details of the assurance of the 2016 information regarding CO_2e.
3. Calculated using the market-based method with electricity from renewable sources at zero tonnes CO_2 per kWh. Emissions increase by 2,600 tonnes at grid-average rates using the location-based method (2016: 4,400 tonnes).
4. Excludes steam supplied by third parties to two sites in China and one in Europe.
5. Constant-currency basis and restated to reflect changes in reporting methodology.

Corporate responsibility continued

People

Total lost time

% of working time

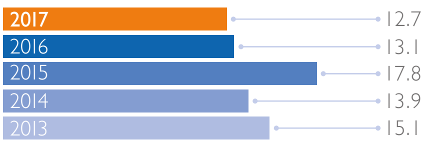


Employee turnover

% per year

Training

Hours per employee



Morgan Advanced Materials plc has circa 8,800 employees, working across the globe in all major markets and regions. The Group's employees are critical to its success and the workforce is built upon people with highly unique skills and abilities. Set out below are the Group's people policies, how they have been implemented, together with a review of their effectiveness.

People Policies and their implementation

The Group supports the Universal Declaration of Human Rights, and the Group's Human Rights Policy commits the Group to protect the rights of everyone who works for it and all those who have dealings with it. The principles of the Policy cover child labour, forced labour, health and safety, freedom of association, discrimination, discipline, working hours and compensation and the Policy is published on the Group's website. Morgan Advanced Materials plc does not unfairly discriminate and respects human rights. Our employee policies are set locally to comply with local law within the overall Group framework. The Morgan Advanced Materials plc Ethics Hotline enables employees who are aware of or suspect issues under the Group's Human Rights Policy to report these confidentially.

The Company promotes equal opportunities for all employees and job applicants and does not unlawfully discriminate on the grounds of their sex, pregnancy/maternity leave, marriage/civil partnership status, gender reassignment, race, disability, sexual orientation, age, religion or belief.

The Company will make reasonable adjustments to accommodate any employees who have a disability within the meaning of the Equality Act 2010 where the Company is aware of such disability.

Investment in people

One of the Group's six execution priorities in 2017, which will continue into 2018, is to increase investment in people development including key functional and technical skills and the development of future leaders.

There was significant investment and progress on this execution priority in 2017. Building on work from previous years and the reorganisation to a Divisional and global business unit structure, the focus has been to continue the assessment of existing capability and close gaps through recruitment and development.

Setting clear expectations is a critical requirement to ensure the recruitment, development and performance of leaders is aligned to strategic requirements. The launch of the Leadership behaviours at the 2017 senior leader conference provided that clarity. The behaviours focus on our ambition for the future, how we build strong teams and being relentless in driving performance.

These three areas support the change in the culture required to successfully deliver our strategy. In 2017 we have focused on supporting our employees to understand the behaviours and begin to demonstrate them.

In 2018 our top 300 leaders will participate in a globally consistent performance management process which measures what is achieved and how it is achieved, through the integration of our leadership behaviours. This will reinforce the importance of role modelling our expected behaviours.

Functional projects have been continued and commenced for sales and technology respectively. The sales assessment enabled detailed planning to define future role requirements and competencies. A similar assessment was conducted with the technology population, which has informed future capability needs.

Our leadership and functional expectations have been applied to new role specifications, recruitment and development activities. In 2017, new roles have been created, with a number of external hires and internal promotions across our senior leader population, strengthening our leadership and functional capability. Sales requirements have enabled the alignment of our sales employees to roles where they can leverage their strengths and add greater value.

Following our global reorganisation and the strengthening of our senior leadership team we have started team development activities. This is centred around team understanding of style and capability to enable more effective working practices. This initiative will continue in 2018 as we work to enable not only individuals, but teams to sustain Morgan as a high performing, healthy company.

Our focus on leadership development has continued though, for example in the Thermal Products Division, the Ascend and Velocity leadership development programmes. In 2018 a review of our leadership programmes will be undertaken to drive greater global consistency and alignment to our future capability needs and leadership behaviours.

We have also introduced a global e-learning platform to provide easily accessible business skills based training across all locations. This has been used initially to support our revised performance management approach.

Assessment of our sales population has identified that we have gaps, and we have started the definition of training requirements, with training to be designed and deployed in 2018. Similar assessment of our technology population has identified areas of focus for 2018.

The Group graduate development programme aims to empower these individuals to drive their own growth and career development in Morgan, so they can become Morgan's future functional and business leaders.

Over a period of 2.5 years, participants are provided with a blend of development opportunities including:

- International and regional training covering business, technical and leadership skills
- Exposure to and networking with senior leaders
- Mentoring, feedback, and regular coaching conversations related to career aspirations
- Learning on the job through a wide variety of cross functional, high responsibility projects, international collaboration and exposure to a variety of roles.

Communications

During a period of increased change, it is important to increase communications. The introduction of quarterly calls for our top 100 leaders has enabled a greater two-way connection. Feedback indicates greater levels of engagement and improved awareness of Group messaging and initiatives. In addition to our annual senior leader conference, the technology function ran a conference focused on innovation, collaboration and an external mind-set.

In May 2017 we held our annual European Employee Forum meeting inviting site representatives to meet with senior leaders and engage in discussion on important topics.

Reward, recognition and awards

The Group recognises the accomplishments of its people individually and as teams, and makes awards to acknowledge achievement, loyalty, and innovation. Recognition awards continue to be made across local businesses as well as to senior management, with awards linked to business performance.

The principle of pay for performance underpins the Group's compensation approach and the Company sets compensation levels using external benchmarking and relevant commercial considerations that are both competitive in the countries in which they operate and affordable. Morgan offers short-term performance incentives globally to managers, technical and functional experts. The Executive Committee and senior management also have long-term incentives tied to personal and commercial performance. At plant level, most sites offer incentives to their workforce that result in payments based on meeting locally-set performance targets.

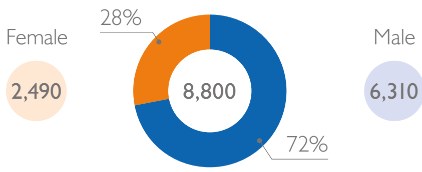
Morgan regularly reviews bonus arrangements and benefits to ensure they encourage and reward commercial and personal performance.

During 2017 the Group introduced a new reward and recognition scheme, the Chairman's Awards. This is an annual awards scheme to reward distinctive contributions made by Morgan employees. There were six categories where we recognised and rewarded achievements; Material Science, Application Engineering, Customer Focus, Functional Excellence, Ethical and Safe Working. The Executive Committee selected one winner per category, and the Chairman and the CEO awarded prizes.

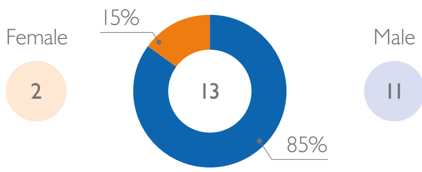
Geographical spread

	2017	2016
USA	**34%**	30%
UK	**11%**	13%
China	**15%**	15%
Other Europe	**17%**	20%
Other N.A	**11%**	7%
South America	**3%**	4%
ROW	**9%**	11%

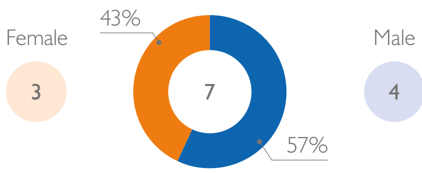
Total workforce



Senior managers



Directors



The Strategic Report, as set out on pages 10 to 53, has been approved by the Board.

On behalf of the Board

Stephanie Mackie
Company Secretary
27 February 2018

Corporate governance

Contents

Automotive

1. **Heat shields**
Our stainless steel encapsulated heat shields provide insulation and noise reduction.

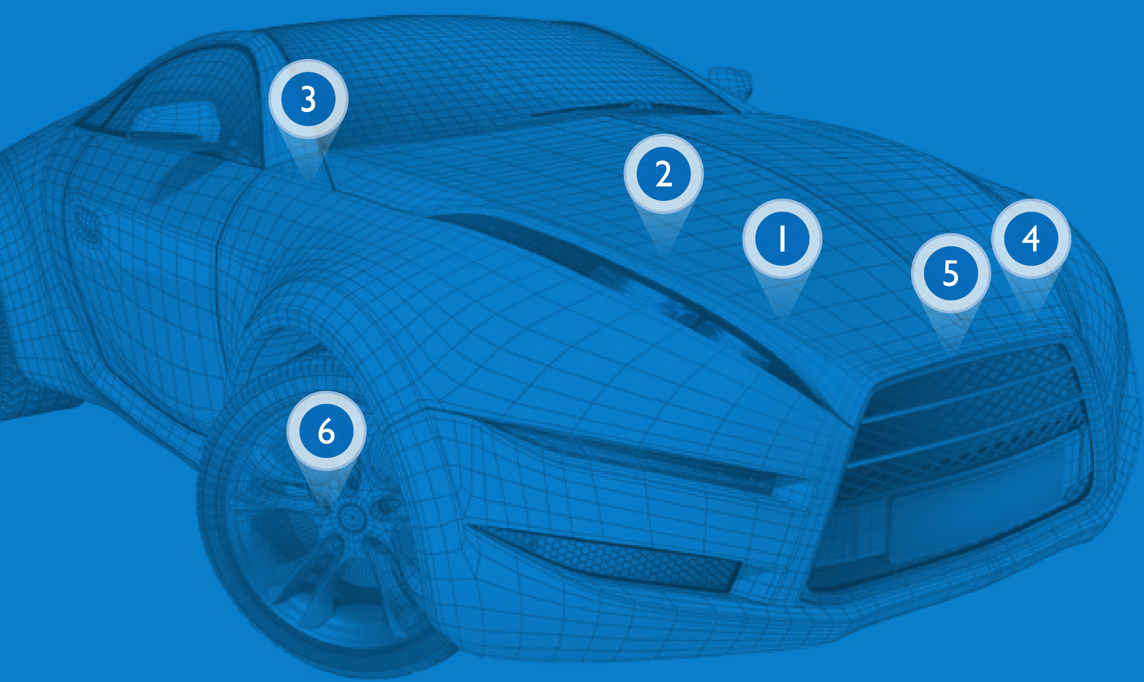
2. **Engine components**
Our Certech® ceramic cores are used in the casting of automotive engine components and cylinder heads.

3. **Welding of car components**
Our ceramic weld pins manufacture offer significantly increased performance and service life.

4. **Battery cell insulation for hybrid vehicles**
Our insulating fibres are used as thermal barriers for battery cells in electric vehicles.

5. **Carbon vanes and rotors**
Our vanes and rotors provide high wear resistance in electric vacuum pumps.

6. **Brake pads**
Our thermal fibres help to increase brake friction pad stability.



Chairman's letter to shareholders

Following recent appointments the Board has a renewed focus on the execution of the Company's strategic priorities and its governance needs.

Andrew Shilston
Chairman

Dear Shareholder

This year the Board has continued to evolve with a further change to its membership and the continuing development of the non-executive Directors who joined the Board in 2016. These appointments have brought additional focus to the execution of the Company's strategic priorities and to its governance needs.

I am pleased to report to you on the Board's development and activities and on some of the significant governance matters that the Board has considered during the year:

- Core focus continues to be on safety, environment and health matters, including the objectives and targets for this key area. The Board received regular updates on safety and environmental operational performance and on initiatives undertaken to raise and renew awareness of safety and improve our safety culture globally.
- The Board continues to support the Executive Committee on the implementation of the execution priorities arising from the strategic review concluded in 2016, including receiving specific strategy updates on each of the global business units, presented by the respective Divisional and global business unit management, and agenda items on talent, technology and sales effectiveness.
- In February 2017, the Board approved the sale of the global Rotary Transfer Systems business to Moog Inc. for €40 million and the sale of its UK Electro-ceramics business to CeramTec for £47 million. Both divestments were completed in April 2017 and form part of the strategy for the Company to simplify its portfolio and reinvest the proceeds from the sales into the core businesses.
- In May 2017, the Board reviewed and approved its Modern Slavery Act Transparency Statement, and in doing so considered how it could enhance the steps the Company already takes to prevent any form of modern slavery. A copy of the statement is available on our website.
- In March 2017, the Board approved changes to the schedule of matters reserved for the Board, which included new matters for Board approval resulting from new legislative requirements and changes to the UK Corporate Governance Code. These included risk appetite, tax strategy and the Modern Slavery Act Transparency Statement, as well as ensuring the Board focuses on those areas which matter most to support the Group in developing a sustainable business.
- The Board selected and appointed Jane Aikman as non-executive Director and Chairman of the Audit Committee.
- The Board oversaw the induction of Jane Aikman, with a focus on increasing her knowledge of the Group and its associated markets in a structured and accessible way, enabling Jane to quickly make an informed and effective contribution to the Board and to participate fully in Board discussions.
- Board visits were organised to a number of sites, which afforded Directors a better insight into our businesses and enabled them to meet local management and to hear more on safety performance and initiatives, market trends, product development, innovation and operations. In September 2017, the Board visited a site in Italy relating to the Company's Thermal Ceramics business, and the Board meeting in November 2017 was held at the Electrical Carbon site in Swansea, Wales, and included a tour of the site operations.
- The Board reviewed the outputs from the internal Board performance evaluation which provided further insight into the Board and its Committees on potential areas for consideration during the next 12 months. These are explained further below under the heading 'Performance evaluation'.
- The Board supported the Audit Committee in its continued rigorous review of internal controls and risk management processes, which is described in more detail in the Report of the Audit Committee.

During 2018 the Board will look at how it can further improve its governance framework and performance and continue to drive the strategic aspirations of the Group.

Andrew Shilston
Chairman

Board of Directors

Andrew Shilston
Non-executive Chairman

Pete Raby
Chief Executive Officer

Peter Turner
Chief Financial Officer

Douglas Caster CBE
Non-executive Director

Jane Aikman
Non-executive Director

Helen Bunch
Non-executive Director

Laurence Mulliez
Senior Independent Director

Andrew Shilston
Non-executive Chairman (aged 62)

Appointed: May 2012 (Chairman Designate; from August 2012, Chairman).

Skills, career and experience: Andrew has extensive board-level experience and governance and industry knowledge. Having joined Rolls-Royce Holdings plc in 2002, Andrew was Finance Director from 2003 until his retirement in 2011 and prior to this he was the Finance Director at Enterprise Oil plc. Until 2017, Andrew was Senior Independent Director of BP p.l.c. and non-executive Director and Chairman of the Audit and Risk Committee of Circle Holdings plc. He was also previously a non-executive Director of Cairn Energy plc, where he chaired the Audit Committee.

Additional appointments: None.

Committees: N R

Pete Raby
Chief Executive Officer (aged 50)

Appointed: August 2015.

Skills, career and experience: Pete has a strong technical background and extensive prior experience in planning and executing business strategy across global technology and manufacturing operations. Pete joined Morgan Advanced Materials in August 2015 as Chief Executive Officer. Before joining Morgan Advanced Materials, Pete was President of the Communications and Connectivity sector of Cobham plc. Pete demonstrated strong leadership across a range of senior strategy, technology and operational positions at Cobham over a nine-year period. Prior to Cobham, Pete was a partner at McKinsey & Company in London, specialising in strategy and operations in the aerospace, defence and power and gas sectors. He has a PhD in satellite navigation and an M. Eng. from the Department of Electronic and Electrical Engineering at the University of Leeds.

Additional appointments: None.

Committees: None.

Peter Turner
Chief Financial Officer (aged 47)

Appointed: April 2016.

Skills, career and experience: Peter has significant financial experience combined with a strong track record of driving improved business performance in multiple large-scale and complex organisations. Peter joined Morgan Advanced Materials in April 2016 as Chief Financial Officer. Before joining Morgan Advanced Materials, Peter was Finance Director at Smiths Group plc from 2010 to 2015. During this time he was responsible for driving restructuring programmes across the Group to enhance operating margins with a strong focus on improving operating cash flow. Prior to Smiths, Peter was Finance Director from 2007 to 2009 at Venture Production plc, before it was acquired by Centrica plc in 2009. From 1995 to 2006, Peter held several senior positions at The BOC Group plc, including Finance Director of the Industrial & Special Products division. Peter started his career as an auditor at Price Waterhouse. He holds a degree in chemistry from Oxford University.

Additional appointments: None.

Committees: None.

Douglas Caster CBE
Non-executive Director (aged 64)

Appointed: February 2014.

Skills, career and experience: Douglas is a highly experienced electronic systems engineer with a strong track record of managing and driving growth within electronics businesses. Douglas began his career with the Racal Electronics Group in 1975, before moving to Schlumberger in 1986 and then to Dowty as Engineering Director of Sonar & Communication Systems in 1988. In 1992, he became Managing Director of that business and, after participating in the management buy-out that formed Ultra Electronics, joined the Board in October 1993. In April 2000, he became Managing Director of Ultra's Information & Power Systems division. In April 2004 he was appointed Chief Operating Officer and became Chief Executive in April 2005. He was appointed Deputy Chairman in April 2010 and became Chairman of Ultra in April 2011. He is currently temporarily assuming the role of Executive Chairman at Ultra until a chief executive is appointed. Douglas was Morgan Advanced Materials plc's Senior Independent Director from January 2015 until December 2017.

Additional appointments: Chairman of Ultra Electronics Holdings plc and Chairman of Metalysis Limited.

Committees: A N R

Jane Aikman
Non-executive Director (aged 52)

Appointed: July 2017.

Skills, career and experience: Jane brings to the Board significant financial experience and knowledge of growing manufacturing and technology businesses. She also brings to the Board a valuable external perspective as a serving executive. Since 2016, Jane has been Chief Financial Officer of KCOM Group plc, a listed communications services and IT solutions provider. She was previously Chief Financial Officer and Chief Operating Officer of Phoenix IT Group plc until its acquisition by Daisy Group in 2015. Jane has also held Chief Financial Officer positions at Infinis plc, Wilson Bowden plc and Pressac plc and a senior finance position at Asia Pulp and Paper in south-east Asia. Jane was a non-executive Director of Halma plc from 2007 and chaired its audit committee from 2009 until her departure in July 2016. Jane holds a civil engineering degree and qualified as a Chartered Accountant with Ernst & Young.

Additional appointments: Chief Financial Officer of KCOM Group plc.

Committees: A N R

Helen Bunch
Non-executive Director (aged 52)

Appointed: February 2016.

Skills, career and experience: Helen has significant experience of driving business performance and building businesses in new markets. Helen also brings to the Board a valuable perspective as a serving executive. At the start of her career, Helen spent 17 years working in global businesses serving a wide variety of industries from automotive to household products: 11 years with ICI and the remainder with a successor company, Lucite International Ltd. In 2006, Helen joined Wates Group, the privately-owned construction and property services company, as Group Strategy Director and became Managing Director of Wates Retail Limited in January 2011. Since 2015, Helen has been Managing Director of Wates Smartspace Limited, the enlarged business following a merger with another Wates company and the acquisition of a facilities management business.

Additional appointments: Managing Director of Wates Smartspace Limited, Governor of The Westminster Academy (Westbourne Green).

Committees: A N R

Laurence Mulliez
Senior Independent Director (aged 52)

Appointed: May 2016.

Skills, career and experience: Through wide-ranging roles both in the UK and internationally, Laurence brings valuable knowledge of the technology and energy industries and insight into some of Morgan's key markets. Laurence has significant experience in growing, simplifying and unifying complex international industrial manufacturing businesses. Laurence started her career with Banque Nationale de Paris in 1988 before moving to M&M Mars Inc. in 1992 and then Amoco Chemical Inc. in 1993, which was acquired by BP p.l.c. in 1998. She spent a further 11 years at BP in a variety of roles including Chief Executive of Castrol Industrial Lubricants and Services. Following BP, Laurence became Chief Executive of independent power producer Eoxis UK Limited from 2010 to 2013. Laurence was appointed Senior Independent Director of Morgan Advanced Materials in December 2017.

Additional appointments: Chairman of Voltalia S.A., non-executive Director of Aperam S.A., non-executive Director of SBM Offshore N.V. and member of the supervisory board of Arcus Infrastructure Partners LLP.

Committees: A N R

Committees

■ Committee Chairman

A Audit

N Nomination

R Remuneration

Corporate governance

Statement of compliance with the UK Corporate Governance Code

The main principles of the Code focus on Leadership, Effectiveness, Accountability, Remuneration and Relations with Shareholders. This statement describes how the Company has applied the main principles of the Code. It should be read in conjunction with the Strategic Report on pages 10 to 53 and the other sections of the Directors' Report on pages 54 to 93.

Throughout the year ended 31 December 2017 the Company has been in compliance with the relevant provisions of the April 2016 edition of the UK Corporate Governance Code (the 'Code') which applies to the 2017 financial year.

The Code is published by the Financial Reporting Council (FRC) and is available on its website **www.frc.org.uk**.

Leadership

The role of the Board

The Board is collectively responsible to the Company's shareholders for the long-term success of the Company. The Board is satisfied it has met the Code's requirements for its effective operation. Following the conclusion of the strategic review and the setting of execution priorities in 2016, the Board has reviewed delivery against these priorities during the year. The Board ensures that there is a robust framework of prudent and effective controls, which enables risks to be assessed and managed. The Board sets the Company's values and standards, which are contained in the Core Values Statement and Ethics Policy, and which are referred to on pages 45 to 53 of the Corporate responsibility section of this Report.

Matters reserved

There is a schedule of matters specifically reserved for the Board, which was updated during the year to reflect the latest Code and other legislative changes, which includes: setting the Group's strategic aims and objectives; approving significant contractual commitments (including the acquisition or disposal of companies/businesses, and treasury and intellectual property transactions); and the review of the effectiveness of risk management processes, major capital expenditure and corporate responsibility. The schedule of matters reserved for the Board is available to view on the Company's website. The Board also regularly reviews the limitations of authority within the Group to ensure they remain appropriate.

Delegation of authority

The Board has delegated authority for specific matters to three principal Committees, namely the Audit, Nomination and Remuneration Committees. The memberships, roles and activities of the principal Committees are described in their respective reports: the Report of the Audit Committee is set out on pages 64 to 67; the Report of the Nomination Committee is set out on pages 68 and 69; and the Report of the Remuneration Committee is set out on pages 70 to 89. The full terms of reference of these principal Committees are available on the Company's website.

The Board delegates the day-to-day management of the Group and operational matters to the Chief Executive Officer and the Chief Financial Officer. The two executive Directors together with the Group Human Resources Director, the Group General Counsel, the Chief Technology Officer, and the Divisional or global business unit Presidents, form the Executive Committee.

The Board has delegated authority for certain other matters including routine approvals to a General Purposes Committee at which a non-executive Director must be present. The Committee meets as required.

The Disclosure Committee met on an ad-hoc basis during the year to assess whether information which directly concerns the Group is inside information and to discharge other responsibilities relating to the control and disclosure of inside information. The membership of the Disclosure Committee comprises all the Directors and the Company Secretary.

Board meetings

In 2017, the Board met formally on eight occasions. A summary of the matters addressed at these meetings is set out below.

During the year, there have been several dedicated agenda items on implementation of the Group strategy, with the Board monitoring the progress made by the Company in delivering the agreed execution priorities. The Board reviewed the pace of change and noted the key actions required to overcome the capacity and capability barriers identified, such as the streamlining of organisation structures and increasing the resources committed to key priorities, with all actions being under the close and regular scrutiny of the Executive Committee. The Board received presentations on the strategic plan for each of the Divisions including the global business units and separate reviews on talent, technology and innovation.

Attendance at meetings

The attendance of each Director at Board, and Audit, Remuneration and Nomination Committee meetings (based on membership of those Committees, rather than attendance as an invitee) is set out in the table below.

	Board		Audit Committee		Remuneration Committee		Nomination Committee	
Director	Eligible to attend	Attended	Eligible to attend	Attended	Eligible to attend	Attended	Eligible to attend	Attended
Andrew Shilston[1]	8	8	–	–	4	4	2	2
Pete Raby[2]	8	8	–	–	–	–	1	1
Peter Turner	8	8	–	–	–	–	–	–
Jane Aikman[1,3]	3	3	1	1	2	2	1	1
Helen Bunch[1,4]	8	8	4	3	4	4	2	2
Douglas Caster[1]	8	8	4	4	4	4	2	2
Laurence Mulliez[1]	8	8	4	4	4	4	2	2
Rob Rowley[1,5]	5	5	3	3	2	2	1	1

1. Indicates a Director deemed by the Board to be independent or, in the case of the Chairman, independent on appointment.
2. Pete Raby, Chief Executive Officer, stepped down as a member of the Nomination Committee on 5 May 2017.
3. Appointed to the Board on 31 July 2017.
4. Helen Bunch was unable to attend the December Audit Committee meeting due to a long-standing business commitment, connected to her full-time executive position. Helen reviewed the papers and relayed any resultant comments to the Committee Chairman prior to the meeting.
5. Stepped down from the Board on 31 July 2017.

Should a Director have concerns about the running of the Company or a proposed action, which are not resolved, their concerns would be recorded in the Board minutes. An appropriate Directors' and Officers' liability insurance policy is in place.

Summary of the Board's work during the year:

- Monitoring of environmental, health and safety performance with detailed update and review of performance presented to the Board in December.
- Approval of the sale of the global Rotary Transfer Systems and UK Electro-ceramics business, both divestments were completed in April 2017. Further information on the two divestments is available on page 31.
- Continued focus on the delivery of the strategic execution priorities including receipt of in-depth business and strategy briefings from the Divisions and global business units.
- Review of potential new product development opportunities.
- Received an update on the talent strategy and potential future leadership capability, another execution priority, looking at how best to train and build the optimum talent pool for the future development of the business.
- Approval of the appointments of Jane Aikman as a non-executive Director, Laurence Mulliez as Senior Independent Director and Stephanie Mackie as Company Secretary.
- Review of the Modern Slavery Act Transparency Statement required to be published on the Company's website by 30 June 2017 and endorsement of associated actions.
- Review and approval of the Group's half-year results, trading statements and preliminary announcement of final results.
- Approval of the 2018 budget.
- Approval of major capital expenditure and review of major capital investment projects.
- Review of the Group's principal risks, following a significant review by the Executive Committee, which led to an update of some of the previous risk categories, enabling a better focus on the risk management activities and identification of any new actions.
- Approval of matters in relation to pensions valuations, funding arrangements and the pensions strategy, in the UK and US, including the closure of the Morgan Pension Scheme in the UK to the future accrual of benefits from April 2018 and replacement pension arrangements (see note 21 for more information).
- Consideration of major shareholders' views on the Group's performance and prospects.
- Review of the Group's IT strategy and performance, focusing on four key elements to align IT requirements with the Company's ongoing strategy.
- Review of the Group's treasury arrangements, including risk.
- Review of outcomes of the Board performance evaluation and agreement on actions for further improvement, as well as monitoring of progress against actions arising from the 2016 performance review.

Corporate governance continued

Chairman and Chief Executive Officer

The roles of Chairman and Chief Executive Officer are separate, clearly established, set out in writing and agreed by the Board.

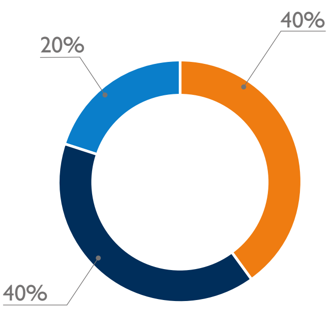
The Chairman is responsible for the leadership and effectiveness of the Board, in order to ensure effective stewardship is exercised over the Group's activities, including: setting the Board's agenda and ensuring sufficient time is available for all agenda items, particularly regarding strategic issues; promoting a culture of open debate and constructive challenge resulting in sound decision-making; facilitating effective contributions by the non-executive Directors; and ensuring constructive relationships between executive and non-executive Directors. The Chief Executive Officer is responsible for the management of the Group, including the delivery of the Group's business plan, the formulation and implementation of strategy, chairing the meetings of the Executive Committee and ensuring the implementation of the Group's policies, all within the authorities delegated by the Board. The Chairman and Chief Executive Officer maintain a strong working relationship and open dialogue, thus ensuring coherent leadership of the Group.

Chairman

On appointment as Chairman on 1 August 2012, Andrew Shilston met the independence criteria set out in the Code.

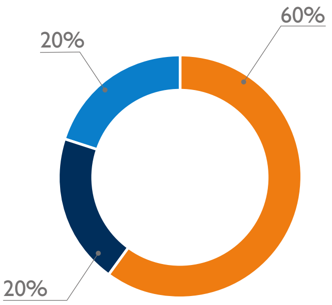
Non-executive Director tenure

2017



- Serving first three-year term
- Serving second three-year term
- Not yet elected by shareholders

2016



- Serving first three-year term
- Serving second three-year term
- Not yet elected by shareholders

Non-executive Directors

Non-executive Directors are appointed for a term of three years, subject to annual re-election in accordance with the Code. The independence, commitment and effectiveness of any non-executive Director who has served for two three-year terms is subject to rigorous review prior to reappointment for a final three-year term. Further information on the non-executive Directors can be found in their biographies on pages 56 and 57 and on how the Board monitors its own performance on pages 62 and 63.

Jane Aikman was appointed to the Board on 31 July 2017 and became Chairman of the Audit Committee replacing Rob Rowley, who stepped down from the Board on the same date following three years' service.

On 8 December 2017, Laurence Mulliez was appointed Senior Independent Director in place of Douglas Caster who continues to serve as a non-executive Director and as Chairman of the Remuneration Committee.

The Chairman and the non-executive Directors met without the executive Directors present on a number of occasions during the year. In addition, the Senior Independent Director and the other non-executive Directors met without the Chairman present.

Effectiveness

Board balance and independence

Following the appointment of Jane Aikman and the resignation of Rob Rowley, the Board continued to comprise five non-executive Directors and two executive Directors. This is considered to be the appropriate number of members of the Board, given the scale of the Group's operations at this time. Biographies of the Directors in post at the date of this Report, including details of their skills, career and experience and other main commitments, are set out on pages 56 and 57.

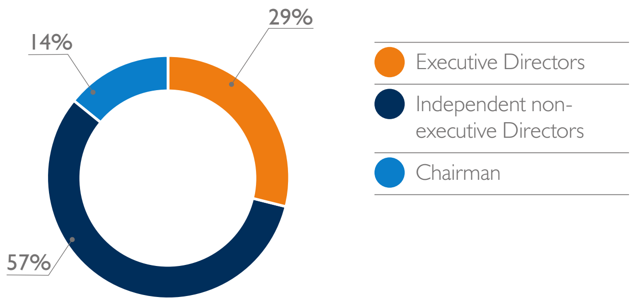
The size, structure and composition of the Board were reviewed during the year, taking into account succession planning and the need to progressively refresh the membership and update the knowledge and range of skills and experience of the Board, which are continuously monitored. The Board wishes to ensure that it maintains a good blend of views and skills as well as a cohesive and informed decision-making process. The Board comprises members with a breadth and depth of professional and sector experience with varied and relevant backgrounds; it has Directors with skills in strategy, finance and technology, as well as global commercial experience, and working knowledge of other Boards or executive roles. Our new non-executive Director, Jane Aikman, has recent and relevant experience for her position as Chairman of the Audit Committee as she is currently the Chief Financial Officer of another listed entity and previously held several senior financial executive roles during which she has gained significant knowledge of growing manufacturing and technology businesses.

Further information on the recruitment process to appoint Jane Aikman is included in the Report of the Nomination Committee on pages 68 and 69.

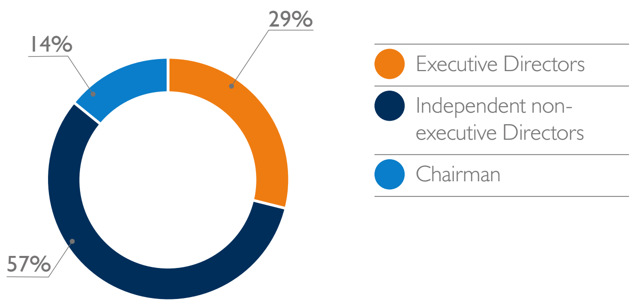
Throughout the year, the Company complied with the requirement of the Code that at least half the Board, excluding the Chairman, should comprise non-executive Directors determined by the Board to be independent. In addition to considering the factors set out in the Code, the Board's assessment of a non-executive Director's independence and effectiveness covers their total number of commitments, and any relationships with major suppliers or with charities receiving material support from the Company.

Board balance

2017

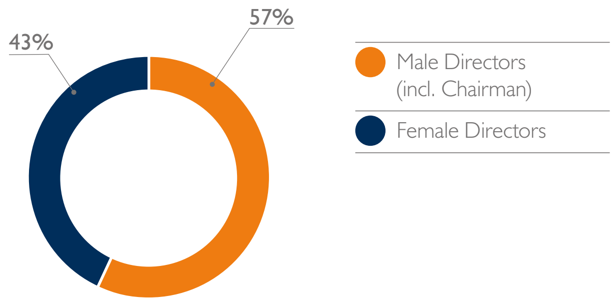


2016

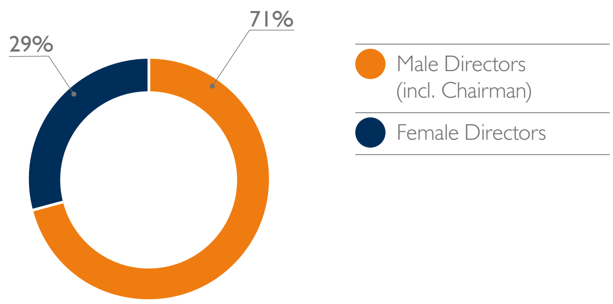


Board diversity

2017



2016



Commitment

Prior to undertaking an additional external role or appointment, the Chairman and the non-executive Directors are asked to confirm that they will continue to have sufficient time to fulfil their commitments to the Company.

Information and support

The Company Secretary, with the Chairman, is responsible for ensuring the Board has full and timely access to all appropriate information to enable it to fully discharge its duties. Board papers are generally made available electronically five working days prior to each meeting. Non-executive Directors also receive updates and information between formal Board meetings.

The Directors have access to the advice and services of the Company Secretary who, with the Chairman, is responsible for ensuring that Board procedures are followed and that applicable rules and regulations are observed. A procedure is in place to enable the Directors to seek independent professional advice at the Company's expense in fulfilling their duties as Directors.

Induction and professional development

New Directors receive a full, formal and tailored induction on joining the Board. A new Director's experience and background is taken into account in developing a tailored induction programme. Jane Aikman received a structured and detailed induction which included an information pack of pertinent documents and a meeting with the external auditor with the departing Chairman of the Audit Committee in attendance. Jane also met with relevant external advisers and other senior executives and functional heads on governance, responsible business, key risks, human resources and environment, health and safety. She attended planned visits to operational sites in the UK and overseas and held meetings with Divisional, business unit and operational management and personnel during those site visits.

All non-executive Directors have access to management and employees at all levels and are encouraged to visit operational sites. Each year at least one Board meeting is held at an operating facility. In 2017, Board visits were made to the Thermal Ceramics site in Casalpusterlengo, Italy, and to the Electrical Carbon site in Swansea, Wales.

The Chairman considers the individual training and development needs of each Director. The Company Secretary keeps the suitability of external courses under review and facilitates the ongoing training and development of all Directors as necessary.

Corporate governance continued

Performance evaluation

Following the externally facilitated review conducted in 2015, the Board conducted an internal Board performance evaluation in 2016 and again in 2017, both led by the Chairman, with the aim of identifying ways to improve effectiveness.

In 2017, the process for the evaluation of the Board and its Committees was as follows:

- → All Board members completed questionnaires, similar to those undertaken in 2016.
- → A report was produced summarising the results of the questionnaires and highlighting any significant changes from last year.
- → The findings were presented to the Chairman.
- → The Chairman met with each Board member to discuss the outputs from the report.
- → The report was circulated to the Board, which had a full discussion on the results and comments at its November meeting and subsequently agreed an action plan.

The Board continuously monitors its own performance to ensure that it provides the Group with the right blend of leadership and strategic oversight, enabling it to carry out its duties effectively. The Board believes that there is scope for further development and improvement to oversee the delivery of the Group's strategy and to ensure that the Board operates effectively and in a timely manner during a period of change. Proposed actions include the following:

- → Consider the skills mix on the Board, and specifically geographical representation, should the need arise to recruit an additional non-executive Director.
- → Continued focus on succession planning and the development of leaders, building on the work of the two previous years, and monitoring initiatives implemented by executive management.
- → Recognising the amount of organisational change within the business, provide more opportunities for interaction with the senior management team.
- → Continue to review the information provided to the Board to assess the Group's risk profile.
- → Communicate the views of the major shareholders to the Board.

Actions were taken during the year to implement the recommendations made following the 2016 internal Board performance review and in the case of execution of the strategic priorities and focus on business leadership, the work is ongoing. The next independent external review is due in 2018.

Recommendations from the 2016 Board performance review and actions implemented during 2017

Recommendations from 2016	Action taken/progress made during 2017
Quality of Board papers and Group financial reporting. Noting progress made in this area, further work to be undertaken to ensure inputs to the Board are suitably succinct and clearly focused.	Improvements have been made to Board papers, for example the three year strategic plans for each global business unit, presented to the Board in June 2017, followed a standard format, including market and competitive environment, selection of growth building blocks and the strategy and resourcing required to pursue them.
Succession planning and business leadership. Continued focus on talent management and development, one of the Group's strategic priorities.	The Board reviewed the Group's leadership capability and succession planning arrangements in September 2017, including key initiatives designed to develop leadership and manage future talent. A number of senior appointments were made in 2017. Morgan's leadership framework, including the Leadership behaviours, was rolled out in the year.
Non-executive Director time together and induction of those recently appointed	Site visits in September and November 2017 increased the time that non-executive Directors spent together and their knowledge of Morgan's businesses, products, operations, risks and environment, health and safety performance. The induction pack for new Directors is continuously reviewed to ensure it remains relevant.

The non-executive Directors, led by Douglas Caster, the Senior Independent Director at the time, met without the Chairman present to evaluate the Chairman's performance during the year, taking into account the views of the executive Directors.

Conflicts of interest

The Board has procedures in place to address the requirements of the Companies Act 2006 concerning the duty of the Directors to avoid conflicts of interest. Accordingly, the Directors are required to:

- → Disclose proposed outside commitments before they are accepted in order to enable a prior assessment of any actual or potential conflict.
- → Disclose without delay any situation which gives rise to an actual or potential conflict.

The Board reviews the outside interests of the Directors annually, including any disclosed conflicts and authorisations. Should an actual or potential conflict be identified, the Board considers whether to authorise the situation in accordance with the Company's Articles of Association and, if so, the terms of any authorisation. In the event of an actual conflict arising, the Director concerned is to notify the Chairman (the Chairman would notify the Senior Independent Director) and the Director would be denied access to the relevant information and excluded from any associated debate and decision.

Following the 2017 review of any conflicts, no potential or actual conflicts were confirmed as having taken place during the year under review. Neither of the current executive Directors holds any external non-executive directorships of other publicly-quoted companies.

Accountability

Financial reporting

A summary of the statement of Directors' responsibilities in respect of the Annual Report and the financial statements is set out on pages 100 to 104 and the going concern and viability statements are set out in the Strategic Report on page 40.

Business model and strategy

Details of the Group's business model, how it is working to generate and sustain long-term value and details of the Board's strategy for ensuring the Group meets its objectives are set out in the Strategic Report on pages 12 to 13.

Internal control

The Board has overall responsibility for establishing and maintaining a sound system of internal control to safeguard shareholders' investment and the Group's assets and for reviewing the effectiveness of this system. The system of internal control, and the role of the Audit Committee in ensuring its effectiveness, are set out in the Report of the Audit Committee on pages 64 to 67.

Relations with shareholders

During 2017, the Chairman and other non-executive Directors attended the full and half-year results presentations so that they were available to respond to any specific shareholder queries.

Following the announcement of the Group's results and after other significant statements and presentations, investor opinion is canvassed and any feedback is made available to the Board. In addition, the Board is provided with brokers' reports and feedback from any shareholder meetings on a regular basis.

To help facilitate dialogue with shareholders, the Investors section of the Company's website includes details of Regulatory News Service announcements, press releases, presentations, webcasts and other relevant Company and shareholder information.

Constructive use of the Annual General Meeting

The Annual General Meeting (AGM) is usually attended by all members of the Board and by a representative of the external auditor. At the AGM held in May 2017, the Chief Executive Officer made a short business presentation. Shareholders were invited to ask questions during the meeting and had the opportunity to meet the Directors and other members of senior management before and after the formal meeting. The results of the proxy voting on all resolutions were released to the London Stock Exchange and published on the Group's website as soon as practicable after the meeting.

Information on share capital and other matters

The information about share capital required to be included in this statement can be found on pages 90 to 93 in the 'Other disclosures' section.

Report of the Audit Committee

This Report gives an overview of the responsibilities of the Audit Committee and how it discharged its duties during 2017, together with information on its membership and governance.

Jane Aikman
Committee Chairman

Chairman's introduction

I am pleased to present my first Report of the Audit Committee for Morgan Advanced Materials plc, having joined the Company on 31 July 2017 when Rob Rowley stepped down from the Board. During the year the Committee has carried out its primary function of ensuring the integrity of the financial reporting and audit processes and the maintenance of sound internal control and risk management processes. The Committee continues to address changes in governance and reporting requirements and to respond to the ongoing challenges of ensuring consistent and robust financial controls across a global business which is going through a process of change as it executes its strategic priorities.

I would like to highlight a number of key areas of focus for the Committee in 2017:

- Continued to oversee the internal audit function, including the scope, purpose and resource of the function, its programme of work and the status of actions arising from audit findings, including their relative risk and progress in resolving them. At its meeting in June, the Committee approved a new Audit Charter which sets out the scope and role of the function, the implementation of which has led to greater clarity over the sources of assurance available to the Board and Committee. We also endorsed a further improvement to the internal audit function's processes in the year, in the implementation of a revised audit methodology, which has led to more consistent and effective delivery of audits.
- Continued to closely monitor our internal controls and received a presentation from each Division (including, in December, from each of the three separate business units within the Carbon and Technical Ceramics Division) on their internal controls and risk management. The presentations were delivered by Divisional and business unit management, as appropriate, which gave the Committee the opportunity to ask questions face to face and gain a real insight into the internal control environment and risk management approach of our businesses. Where issues were reported, the Committee gave full consideration to the cause, potential or actual impact and response by management.
- Approved the appointment of a new Director of Ethics & Compliance, to develop and implement a strategy to drive forward our approach to ethical business conduct, as well as to provide strategic oversight, management and regulatory guidance to ensure the Group's operations are conducted in compliance with global and local regulations (see page 40 of the Strategic Report for further information).
- Reviewed the Group's tax strategy prior to approval by the Board, as published on the Company's website from December 2017.
- Reviewed preparations and the action plan for the implementation of a number of the OECD's proposed action points on Base Erosion and Profit Shifting (BEPS), noting in particular key impact items and potential impact items (see page 29 for further information on tax risk) reviewed the key accounting judgements made by executive management, taking into account the views of the external auditor. The key areas of significant judgement in relation to the 2017 financial statements were in respect of specific adjusting items, intangible asset impairment testing, provisions and contingent liabilities and tax balances and these are set out in detail on page 66 within this Committee Report.
- Reviewed and updated the Audit Committee's terms of reference to bring them up to date with recent changes in legislation and best practice.

From my first impressions including meetings with management and the external auditor, and with additional insight from the recent Board and Committee performance review, I am satisfied that the Committee is continuing to work well, is contributing effectively to the governance framework and is fully discharging its responsibilities.

Jane Aikman
Committee Chairman

Committee members

Jane Aikman (Chairman)[1]
Rob Rowley (Chairman)[2]
Helen Bunch
Douglas Caster
Laurence Mulliez

1. From appointment as a Director on 31 July 2017.
2. Until resignation as a Director on 31 July 2017.

All members of the Committee are independent non-executive Directors and Rob Rowley (Committee Chairman until 31 July 2017) and Jane Aikman (Committee Chairman from 31 July 2017), have the requisite financial experience and competence in accounting and auditing. Biographies of the current Committee members, including details of relevant sector experience, are set out on pages 56 and 57.

Meetings

At the end of most meetings, the non-executive Directors who are members of the Committee also meet the external auditor, the Head of Internal Audit and the Director of Ethics & Compliance, without the executive Directors or other members of management present. Between meetings, the Chairman of the Audit Committee keeps in contact with the Chairman of the Board, the Chief Executive Officer, the Chief Financial Officer, the Group Financial Controller, the external auditor, the Head of Internal Audit and the Director of Ethics & Compliance as necessary.

Information and support

The Committee may request the attendance at meetings of any Director or employee as may be considered appropriate by the Committee. The Chairman of the Board, the Chief Executive Officer, the Chief Financial Officer, the Head of Internal Audit, the Group Financial Controller, the Group General Counsel and the Director of Ethics & Compliance and senior representatives of the external auditor attend meetings by invitation.

The Committee identifies and ensures that it receives the information it needs to enable it to fulfil its responsibilities. Training and development information is made available to the members of the Audit Committee as appropriate.

Audit Committee terms of reference

The Audit Committee has a clear set of responsibilities and these are set out in its terms of reference and agreed by the Board. These terms of reference were reviewed and updated during the year to ensure they are wholly compliant with the April 2016 version of the UK Corporate Governance Code which applied to the 2017 financial year and consistent with the FRC's revised Guidance on Audit Committees, also published in April 2016, as well as with the Disclosure Guidance and Transparency Rules. The terms of reference are available on the Company's website and the responsibilities of the Audit Committee are summarised below:

- → Monitoring and making appropriate recommendations to the Board with regard to the financial reporting process, the integrity of the financial statements of the Group, preliminary announcements of results, half-year reports and any formal announcements relating to the Group's financial performance, and reviewing significant financial reporting judgements contained in them.
- → Reviewing accounting policies used by the Group and their consistent application across the Group.
- → Reviewing whether the Group has followed appropriate accounting standards and made appropriate estimates and judgements, taking into account the views of the external auditor.
- → Reviewing, prior to approval by the Board, the assessment of whether it is appropriate to adopt the going concern basis of accounting in preparing the financial statements and the identification of any material uncertainties to the ability to do so over a period of at least 12 months from the date of approval.
- → Reviewing, prior to approval by the Board, the assessment of whether there is a reasonable expectation, taking the Group's position and principal risks into account, that the Group will be able to continue in operation and meet its liabilities as they fall due over the period covered by that assessment.
- → Reviewing the content of the Annual Report and Accounts and advising the Board on whether, taken as a whole, it is fair, balanced and understandable and provides the information necessary for shareholders to assess the Company's position and performance, business model and strategy.
- → Agreeing the processes to enable the ongoing monitoring and review of the scope, adequacy and effectiveness of the Group's internal controls and risk management systems.
- → Carrying out, at least annually, a review of the Group's internal controls and risk management systems, including procedures for identifying and assessing principal risks to the Group's business and the management and mitigation of those risks.
- → Reviewing and monitoring the Group's whistleblowing arrangements and systems and controls for the prevention of bribery.
- → Monitoring and reviewing the effectiveness of the Group's internal audit function, approving the remit of the function and ensuring it has adequate standing and is free from management or other restrictions.
- → Making recommendations to the Board, for it to put to shareholders for their approval at the AGM, in relation to the appointment, reappointment and removal of the external auditor and the approval of the remuneration and terms of engagement of the external auditor.
- → Subject to the current transitional provisions, ensuring that the audit services contract is put out to competitive tender every 10 years, supervising any such process and overseeing the selection process for a new auditor.
- → Reviewing the effectiveness of the process for the statutory audit of the annual consolidated accounts, taking into consideration relevant UK professional and regulatory requirements.
- → Reviewing and monitoring the external auditor's independence and objectivity. Developing, implementing and monitoring the policy on the engagement of the external auditor to supply non-audit services, taking into account relevant ethical guidance regarding the provision of non-audit services by the external auditor.
- → Reporting to the Board, identifying any matters in respect of which the Committee considers that action or improvement is needed and making recommendations as to the steps to be taken.

The Committee has the authority, in accordance with its terms of reference, to investigate any matters and may obtain external advice at the cost of the Company, but did not seek or require any such advice during the year.

Main areas of work in 2017

During 2017, in addition to the areas of work outlined in the Chairman's letter above, the Committee:

- → Reviewed the Group's half-year and full-year statements prior to Board approval.
- → Made a recommendation to the Board that it is appropriate to prepare the accounts for the year on a going concern basis.
- → Reviewed the methodology for preparation of the Company's viability statement (see page 40 of the Strategic Report), agreed an appropriate time period for that statement, and a reasonable financial 'base case' for that period, together with an in-depth evaluation of the risks affecting the financial viability of the Company over that timeframe, all for recommendation to the Board.
- → Reviewed the results of the detailed impact assessment in relation to *IFRS 15 Revenue Recognition*, including specific tests to ascertain where differences in accounting treatment will be required, concluding that there will not be a significant impact.
- → Reviewed the scope of the external audit, and confirmed the external auditor's terms of engagement and fee structure.
- → Assessed the findings of the external audit, including any potential major issues and noting the key audit risks.
- → Assessed the effectiveness of the external audit process, including all aspects of the service provided by the external auditor, whilst noting the auditor's view of interactions with senior management.
- → Monitored the level of non-audit work of the external auditor, which in 2017 included services amounting to £0.2 million mainly in connection with tax services, equating to 8% of the audit fees.

Report of the Audit Committee continued

- Reviewed the controls and assurance processes that are in place to mitigate the Group's key risks.
- Reviewed the effectiveness of, and received reports from management on, the Group's internal audit and risk management systems.
- Reviewed and approved the plan, work and overall effectiveness of the internal audit function, monitored its progress against the plan and ensured that the appropriate resource was deployed within the function.
- Reviewed the systems of internal controls of, and risks managed in, the Divisions, (see Risk management section on pages 26 to 29).
- Reviewed the Group's whistleblowing process and related procedures and policies.
- Reviewed material litigation.
- Reviewed compliance with, and implementation of, the Group's policies, noting that the implementation of the new, strengthened financial control framework in 2016 had led to an improvement in controls and further improvements were anticipated.
- Reviewed the status of the Group's export controls compliance programme.
- Reviewed the status of the Group's risk from third-party representatives (agents and distributors).

Public reporting

The Committee, as requested by the Board, considered the Code requirement for the Board to make a statement on whether the Annual Report and Accounts taken as a whole is fair, balanced and understandable. The Committee approached this as follows, and:

- Considered the questions which need to be answered in order to evaluate whether the Annual Report and Accounts meets the fair, balanced and understandable test.
- Reviewed the methodology used to construct the narrative sections of the Annual Report.
- Reviewed the disclosure judgements made by the authors of each section and considered the overall balance and consistency in the Annual Report.
- Received confirmation from external advisers that all regulatory requirements are satisfied.
- Received confirmation of verification of content from the authors of each section.
- Received confirmation from the Chief Financial Officer that the narrative reports and financial statements are consistent.
- Made a recommendation to the Board to assist it in determining whether it is able to make the statement that the Annual Report and Accounts taken as a whole is fair, balanced and understandable.

The significant areas of judgement considered by the Committee in relation to the 2017 financial statements, and how these were addressed, were as follows:

- Specific adjusting items
  In the consolidated income statement, the Group has presented specific adjusting items separately in order to provide the best indication of the underlying performance of the Group, and details of the nature and quantum of the individual items are provided in note 6 to the financial statements. These comprise the disposal on 31 March 2017 of the UK Electro-ceramics business and the global Rotary Transfer Systems business, together with the partial disposal on 30 June 2017 of the Diamond Crucible Company Limited to Morgan Crucible India Limited in relation to the consolidation of two sites. The Committee fully considered the principle of disclosure for specific adjusting items and the individual items. Taking into account guidelines issued by the FRC and peer group disclosure of similar items, the Committee concluded that it is the best way to present the Group's results.
- Intangible asset impairment testing
  The latest financial projections and other assumptions support the valuation of the intangible assets of the Group. Further information on the goodwill generally and the sensitivities associated with the impairment calculations are given in note 11 to the financial statements.
- Provisions and contingent liabilities
  The level of provisioning for known and contingent liabilities, including those arising from trading, environmental issues and litigation, is an issue where management and third-party judgements are important. These are addressed by the Committee and the Board discussing with various members of senior management the key judgements made, supported, where appropriate, by relevant external advice. KPMG LLP also reports regularly on all material provisions and contingent liabilities. During the year the Group recorded redundancy and restructuring provisions in the ordinary course of business totalling £9.5 million, which are disclosed separately in note 22 to the financial statements to provide investors with additional information to assist in their assessment of the Group's performance.
- Tax balances
  Accounting for current and deferred tax involves a range of judgements. The Committee and the Board address these issues through reporting from the Chief Financial Officer and the Director of Group Tax, supported as necessary by external professional advice.

The Committee reviewed the content of the Annual Report and Accounts and advised the Board that, taken as a whole, it is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy.

Internal financial control and risk management systems

The Committee assists the Board in fulfilling its responsibilities relating to the adequacy and effectiveness of the control environment and risk management systems. The Group's system of internal control has been in place for the year under review and up to the date of approval of the Annual Report.

Through the Audit Committee, the Board reviews the effectiveness of the internal control system annually and did so during the year under review. This system is consistent with the FRC's guidance on the internal control requirements of the Code. This review covered all material controls, including financial, operational and compliance controls, and risk management systems. The Audit Committee and Board receive regular risk management reports and together they ensure that there are adequate internal controls in place and that they are functioning effectively.

The Directors believe that the Group's system of internal financial controls provides reasonable, but not absolute, assurance in the following areas: that the assets of the Group are safeguarded; that transactions are authorised and recorded in a correct and timely manner; and that such controls would prevent and detect, within a timely period, material errors or irregularities. The system is designed to manage, rather than eliminate, risk and to address key business and financial risks.

The main features of the Group's systems for internal control and for assessing the potential risks to which the Group is exposed are summarised as follows:

- Control environment
  The Group's control environment is underpinned by the Group's policy set. This covers financial procedures, environmental, health and safety practice, compliance (eg anti-bribery and corruption, and trade compliance) and other areas such as IT and HR. There is a Limit of Authorities Policy which describes the matters reserved for the Board and the delegations granted to the Chief Executive Officer and other executives. The Group operates various programmes to continuously improve the control environment and management of risk. These

include the Group's Responsible Business Programme, which includes relevant training, the provision of systems to help businesses manage risk consistently, and reporting processes. The external ethics hotline is available to employees to raise concerns and all reports made to the ethics hotline are investigated by senior management. The Divisional and business unit Presidents and other senior operational and functional management make an annual statement of compliance to the Board confirming that, for each of the businesses for which they are responsible, the financial statements are fairly presented in all material respects, appropriate systems of internal controls have been developed and maintained, and the businesses comply with Group policies and procedures or have escalated known exceptions to an appropriate level of management. In addition, the Audit Committee receives an annual presentation on business risk and internal controls from both Divisions.

→ Financial reporting
Risk management systems and internal controls are in place in relation to the Group's financial reporting processes and the process for preparing consolidated accounts. These include policies and procedures which require the maintenance of records which accurately and fairly reflect transactions and disposal of assets, provide reasonable assurance that transactions are recorded as necessary to allow the preparation of financial statements in accordance with International Financial Reporting Standards (IFRS), and the review and reconciliation of reported data. Representatives of the businesses are required to certify that their reported information gives a true and fair view of the state of affairs of the business and its results for the period. The Audit Committee is responsible for monitoring these risk management systems and internal controls.

→ Performance monitoring
There are regular meetings of the Board and of the Executive Committee. A comparison of forecast and actual results is considered, including cash flows and comparisons against budget and the prior year. Divisional management teams also meet regularly to review performance. The members of the Executive Committee also visit sites regularly.

→ Risk management
The Board has undertaken a robust annual assessment of the Group's principal risks. The identification, assessment and reporting of risks is an ongoing process carried out in conjunction with operational management and steps are taken to mitigate and manage all material risks including those relating to the Group's business model, solvency and liquidity. The Board, either directly or through the Audit Committee, receives updates on risks, internal controls and future actions from both Divisional and Group perspectives. The Executive Committee collectively reviews risk management and internal controls for all principal Group risks. The Group's risk management system, as set out in the Risk management section on pages 26 to 29, supports the going concern statement and the viability statement on page 40.

→ Risk factors
The Group's businesses are affected by a number of factors, many of which are influenced by macro-economic trends and are therefore outside the Company's immediate control, although, as described above and in the Strategic Report, the identification and management of such risks is carried out systematically. These are further discussed in the Risk management section on pages 26 to 29.

→ Internal audit
The Group's internal audit function reviews internal control and risk management processes. The Audit Committee approves the annual internal audit plan and receives regular reports showing the results of the audits. Actions arising from internal audit reviews are agreed with management and the Audit Committee monitors progress of any outstanding actions. The Head of Internal Audit has direct access to the Chairman of the Audit Committee and meets separately with the Audit Committee without executive management at least twice a year.

External auditor, including non-audit services policy

The external auditor, KPMG LLP, has processes in place to safeguard its independence and objectivity, including specific safeguards where it is providing permissible non-audit services, and has confirmed in writing to the Audit Committee that, in its opinion, it is independent. After considering such procedures, the opinion of the Audit Committee was that the auditor's objectivity and independence were safeguarded despite the provision of a limited number of non-audit services by KPMG LLP (see below).

In 2016, following the implementation of the EU Audit Regulation and Directive, the Committee approved a revised policy on the provision of non-audit services which applied for the 2017 financial year onwards. The changes to the policy further reduced the scope of non-audit services the external auditor may provide, for example in relation to certain tax matters and internal accounting and risk management control reviews relating to the preparation and control of financial information. The changes also enhanced the process for approval of other permissible services provided by the external auditor.

The revised policy on the provision of non-audit services by the external auditor is summarised below:

- → Certain non-audit services may not be provided. The external auditor may not: review their own work; make any management decisions; create a mutuality of interest; and/or put themselves in the position of advocate.
- → Any permissible non-audit work proposed to be placed with the external auditor with a total fee between £50,000 and £200,000 must be approved in advance by the Chairman of the Audit Committee. Projects in excess of £200,000 must be approved in advance by the Audit Committee. All permissible non-audit work, regardless of value, must be approved by the Group Financial Controller. Work which includes multiple phases is treated as a single project for approval purposes.
- → The prior approval of the Audit Committee is required for any non-audit work which, when added to the fees paid for other non-audit work, would total more than 60% (previously 80%) of the audit fee.
- → The value of non-audit fees must not under any circumstances exceed 70% of the average Group statutory audit fee incurred in the last three consecutive financial years.

In 2017, the proportion of the auditor's fees for non-audit work relative to the audit fee was 8% (2016: 8.0%).

The Committee's policy is to undertake an annual review of the effectiveness of the audit process and of all aspects of the external auditor's performance and independence before determining whether to undertake a formal review of the auditor, including a re-tender presentation, or whether to put the Group's audit work out to full third-party tender.

The Group last changed its auditor in late 2001. The external auditor rotated the partner responsible for the Group's audit work in 2008 and 2013 and the audit for the 2017 financial year is the last for the current partner. Having reviewed the effectiveness of the audit process, and all aspects of the service provided by the external auditor, and taking account of the assurance given by the external auditor as to its independence, the Committee recommended to the Board that a third-party tender of the external audit work in 2018 was not desirable. The position would be reviewed at least annually, and the Committee anticipated that the retender would take place from 2020 onwards, noting that the financial year ending 2023 was the last audit KPMG LLP would be permitted to perform under the Companies Act 2006. The Company has complied with the provisions of the Competition and Markets Authority's Order on statutory audit services.

Report of the Nomination Committee

The Nomination Committee leads the process for Board appointments and, having considered Board balance to ensure its continued effectiveness, makes recommendations to the Board on the appointment of new Directors.

Andrew Shilston
Committee Chairman

Chairman's introduction

We announced on 28 April 2017 that Jane Aikman would be joining as a non-executive Director on 31 July 2017 when Rob Rowley would step down from the Board.

In relation to this Board change, the Committee evaluated the Board's succession needs, noting Rob Rowley was Chairman of the Audit Committee, and also taking into account the challenges and opportunities facing the Company as it continues to implement its strategic priorities. The Committee worked closely with executive search agents to evaluate the skills and experience required to balance the Board and to meet the needs of the Company, and additionally noted the requirements of the Code and Disclosure Guidance and Transparency Rules in terms of the competence in accounting or auditing and the recent financial experience required by at least one member of the Audit Committee.

Following the creation of a candidate specification, the Committee reviewed a list of candidates proposed by the external search agents and subsequently conducted a number of interviews with shortlisted candidates.

Committee members

Andrew Shilston (Chairman)
Jane Aikman[1]
Helen Bunch
Douglas Caster
Laurence Mulliez
Pete Raby[2]
Rob Rowley[3]

1. From appointment as a Director on 31 July 2017.
2. Until 5 May 2017 when the Chief Executive Officer stepped down as a member of the Committee.
3. Until resignation as a Director on 31 July 2017.

A majority of members of the Committee are independent non-executive Directors.

The Nomination Committee reviews annually the Board's size and composition in terms of the balance of skills, experience, independence, diversity and knowledge considered desirable to oversee the Company's long-term strategy, and remains mindful of the need for proactive and long-term succession planning. During the year, the Board discussed the Group's approach to talent management and succession planning at senior levels as part of its review of progress on the execution priorities.

There is a formal, rigorous and transparent procedure for appointments to the Board, which is described in more detail below. Appointments are made on merit and against objective criteria, having due regard for diversity, including gender. As a Board we value a diversity of outlook, approach and style and believe that a balanced Board is better equipped to consider matters from a broader perspective. We regard the Board performance review as an important means of monitoring our progress in the areas covered by this Report and discussed relevant matters highlighted during the 2017 evaluation process (see page 62 for full details).

Andrew Shilston
Committee Chairman

Meetings

The Committee met formally twice during 2017. In addition, members of the Committee met between scheduled meetings to progress the recruitment of the new non-executive Director.

Information and support

The Committee may request the attendance of any other Director or member of management, for all or part of any meeting, as it considers appropriate.

Nomination Committee terms of reference

The Committee's terms of reference were reviewed during the year with no changes proposed. The terms of reference are available to view on the Company's website.

Main areas of work during 2017

The Nomination Committee regularly reviews the balance of skills, knowledge and experience on the Board, succession planning and the leadership needs of the Group. The work of the Committee in discharging those responsibilities in respect of 2017 included:

- Reviewing the executive and non-executive leadership needs of the Company.
- Instigating and overseeing the search and selection process in relation to the appointment of Jane Aikman as a non-executive Director and Chairman of the Audit Committee, including recommending her appointment to the Board.
- Recommending for approval by the Board, the appointment of Laurence Mulliez as Senior Independent Director to replace Douglas Caster who stepped down from this role in December 2017.
- Ensuring, by means of talent discussions at Board meetings, further development of management succession and development plans for the Executive Committee and senior executives.
- Considering the Directors' annual re-election at the 2017 AGM.
- Reviewing, for recommendation to the Board, the Board's policy on diversity (see below).

In 2018, the Committee will continue to review succession plans for the Board and keep under review relevant development initiatives for the Directors.

Appointments to the Board

Spencer Stuart was retained for the external search for the non-executive Director. Spencer Stuart has signed up to the voluntary code of conduct for executive search firms, which includes provisions on diversity. Spencer Stuart has no other connection with the Company, other than in the search for and assessment of candidates for a limited number of senior roles in 2017.

The process for appointing Jane Aikman as a non-executive Director is described below:

- The Committee formulated a candidate specification for the role taking into account the balance of skills, knowledge, experience and diversity on the Board, and noting that it required a suitable successor to Rob Rowley with the requisite skills, experience and background to chair the Audit Committee, as well as bring an appropriate level of support and challenge to the Board.
- The external search agents produced a long-list of candidates for the role.
- Interviews with members of the Nomination Committee were held with shortlisted candidates.
- The Committee subsequently selected Jane Aikman as its preferred candidate based on objective criteria and recommended her appointment to the Board. The Board approved the appointment of Jane Aikman and confirmed a commencement date of 31 July 2017. Rob Rowley stepped down from the Board on the same day.

The terms and conditions of appointment of non-executive Directors are available for inspection. Non-executive Directors, including the Chairman, are asked to confirm that they will allocate sufficient time to meet their commitments to the Company and that their other appointments and significant time obligations are disclosed to the Board prior to appointment, with an indication of the level of time commitment involved. The Board is informed of any subsequent changes with additional commitments disclosed before they are accepted.

Senior leadership and succession planning

One of the Company's strategic execution priorities, which remains a key area of focus, is to increase investment in people management and development. The Board discussed the Group's approach to talent management and succession planning at senior levels in September 2017 as part of its review of progress on the strategic execution priorities. The rollout of a new leadership framework in 2017 aimed to ensure the right talent and associated processes were in place to execute the strategy successfully and to further the development of current and future potential leaders (see the Increasing investment in people management and development section of the Strategic Report on pages 24 to 25 and pages 52 to 53). The Board noted a number of actions and initiatives introduced to help build stronger and more capable leaders, including defining behavioural expectations through identified leadership behaviours, modifying the approach to senior recruitment and improving linkage of reward and performance. The Board also noted progress to date in creating an enhanced performance culture and addressing the succession pipeline, including the promotion of diversity.

Board Diversity Policy

The Board recognises the importance of diversity at all levels of the Company. As reflected in recent appointments, a considerable number of factors are taken into consideration in the recruitment process for the Board, including international, industrial and professional experience, diversity of perspective, including background, nationality, outlook, approach and gender, and the blend of skills around the Board table. During the selection process for new non-executive Directors, the Committee uses a search agent who has signed up to the voluntary code of conduct for executive search firms, which ensures that diversity is considered when developing a candidate pool.

The Board monitors closely whether it is taking diversity in its broadest sense into account when planning executive succession and appointing new Board members, and the Board performance review process considers diversity.

When monitoring the development of leadership and considering the succession planning for executive management, the Board will take into account diversity as well as the need for talented leaders with the skills to both lead a global company with a presence in the key world economies and manage the associated macro-economic challenges.

In terms of progress in promoting diversity in the year, and without setting any targets, three of the seven Board Directors are female (up from two in 2016) equating to 43% female representation on the Board and over half of the non-executive Directors. Of these, one is Senior Independent Director and one is Chairman of the Audit Committee. These appointments demonstrate the Board's commitment to greater diversity. At 31 December 2017, 15% (2016: 14% and 2015: 13%) of senior managers are female. At the graduate recruitment level, the Group successfully attracts a diverse group of good candidates. In 2017, 32% (2016: 37% and 2015: 41%) of the graduate intake were female and the 2017 cohort was represented by 10 nationalities (2016: 8 and 2015: 5).

The Committee takes diversity into account in broader discussions on succession planning and talent development and supports management in their wider commitment to promoting diversity.

Remuneration report

A statement to Shareholders from the Chairman of the Remuneration Committee.

Douglas Caster
Committee Chairman

I am pleased to present the Remuneration Report for the year ended 31 December 2017.

2017 has seen significant progress in the implementation of the Group's new strategy, with Morgan investing in sustainable, long-term growth as well as implementing portfolio re-shaping as first outlined by Pete Raby in February 2016. The Remuneration Committee has kept the Remuneration Policy under review, to ensure it remains fit for purpose and continues to support strategy development and execution and to maximise returns to shareholders. The Remuneration Committee concluded that our incentives continue to achieve this aim, whilst also ensuring the continued focus on the quality of performance across the year as well as the year end result.

In summary, the main developments in terms of how we have implemented our Remuneration Policy in 2017 are as follows:

- Implementation of a holding period following vesting of the Long-Term Incentive Plan (LTIP) for executive Directors.
- Implementation of a deferred bonus plan whereby 67% of the annual bonus result is paid in cash and the balance is deferred into shares held for a further three years.

Details of the introduction of these measures were provided in the 2016 Remuneration Report.

No change is proposed to our approach to implementing our Policy in 2018.

In reviewing performance in 2017, 71% of maximum bonus will be paid. The 2015 LTIP award partially vested, resulting in a 15.4% achievement of the maximum.

The Remuneration Committee decided that, taking into account the performance of the Group in 2017, labour market conditions and the below-median recruitment salary of the Chief Executive Officer (CEO), the appropriate level of salary increase for the CEO would be 5.05% and for the Chief Financial Officer (CFO) it would be 2.00%. There will also be an increase to the fees for the Chairman and non-executive Directors of 2% for 2018.

We have considered performance measures and incentive targets to ensure they align with our strategic aims, motivate and reward management for delivering sustainable above-peer performance, and support retention.

For the 2018 LTIP cycle, it is proposed to retain the ROIC* measure, first introduced in 2017. This measure includes total intangible assets in the definition of capital employed. This is felt to be a more complete measure of the return on capital employed and so will incentivise better capital management across the Group. The range being applied to the ROIC* measure remains unchanged at 16%-19%. The relative TSR element of the LTIP remains split equally between two comparator benchmarks: the constituents of the FTSE All-Share Industrials Index, and a tailored group of international sector comparators. The constituents of this sector benchmark are shown on page 84 of this Remuneration Report. The EPS performance range against multiple relevant reference points (including the Group's strategic plan, external market factors and broker forecasts), remains 4%-11% pa.

During the year, the Committee met four times, and its activities included:

- A review of the Group's Remuneration Policy and how its implementation can best support the Group's business strategy.
- A review of external benchmarking of executive remuneration packages.
- Determination of the remuneration packages for the executive Directors and other Group executives.
- A review of whether the measures for the bonus and share incentive schemes remain appropriate.
- Determination of appropriate performance targets for bonus and share incentive schemes.
- Determination of whether 2017 targets for the bonus and share incentive schemes were achieved.

This Report is consistent with the current reporting regulations for executive remuneration. In addition, we have introduced an 'At a glance' section to the Report, providing a summary of the key elements of executive Director remuneration. I hope we have been successful in continuing to achieve the clarity and transparency that will be of help to our shareholders.

Douglas Caster
Committee Chairman

Remuneration at a glance

Components of remuneration

Salary + Pension and benefits = Fixed total

Annual bonus + LTIP = Variable total

Fixed total + Variable total = Total remuneration

Key features of how our executive remuneration policy will be implemented in 2018:

Fixed components

Base salary

Pete Raby (CEO)	£520,000	Peter Turner (CFO)	£400,600

Policy

Executive Directors' salaries are generally reviewed each January, with reference to the salary levels at companies of similar sector, size and complexity. Any increases come into effect from 1 January 2018.

Pension and other benefits

Pension		Benefits	
Pete Raby (CEO)	20% of salary	Pete Raby (CEO)	£13,482
Peter Turner (CFO)	20% of salary	Peter Turner (CFO)	£12,070

Policy

Executive Directors may receive defined contributions (and/or cash in lieu thereof) of up to 20% of salary. Other benefits can include company car/car allowance, health insurance and, where appropriate, relocation allowances and other expenses.

Variable components, Annual bonuses

Maximum opportunities for 2018		Performance measures weighting	
Pete Raby (CEO)	150% of salary	EBITA*	40%
Peter Turner (CFO)	150% of salary	Cash generation*	40%
		Strategic personal objectives	20%

Policy

Maximum award opportunity: 150% of base salary

Performance measures are set by the Committee at the start of the year and are weighted to reflect a balance of financial and strategic objectives. 67% of the any annual bonus paid is delivered in cash with the remainder deferred into shares and released after a further period of three years. 50% of the bonus opportunity is paid for on-target performance.

LTIP

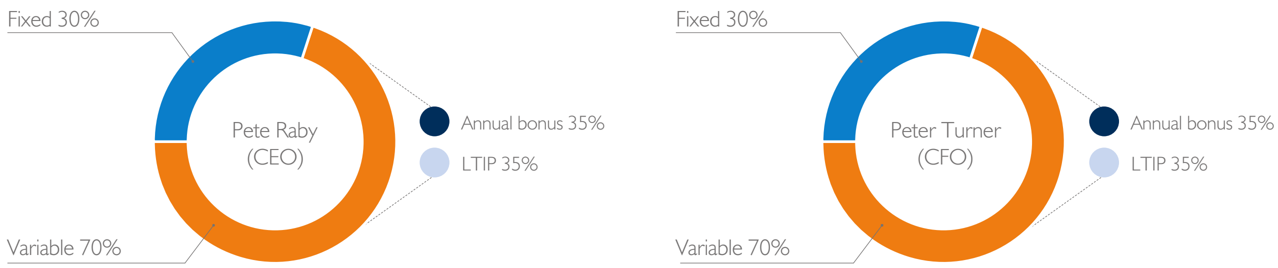
Maximum opportunities for 2018		Performance measures weighting	
Pete Raby (CEO)	150% of salary	TSR vs. FTSE All-Share	
Peter Turner (CFO)	150% of salary	Industrials Index	1/6
		TSR vs. peer group	1/6
		EPS growth	1/3
		Group ROIC*	1/3

Policy

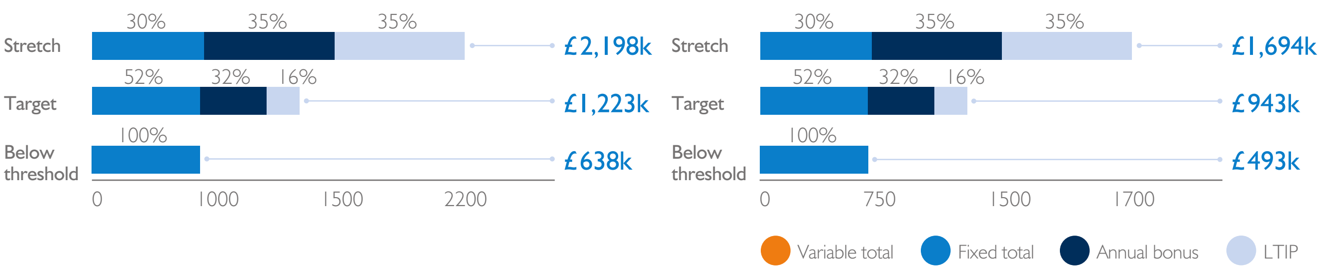
Maximum award opportunity: 250% of base salary

The award levels and performance conditions on which vesting depend are reviewed prior to the start of each award cycle to ensure they remain appropriate. Vested shares are subject to a post-vesting holding period. The vesting of awards is usually subject to continued employment and the Group's performance over a three-year performance period.

Pay at risk



Pay scenarios



Shareholding requirements

→ Pete Raby (CEO) 200% of salary

→ Peter Turner (CFO) 200% of salary

Remuneration report continued

Compliance statement

This Report covers the period 1 January 2017 to 31 December 2017 and provides details of the Remuneration Committee and Remuneration Policy of Morgan Advanced Materials plc, and how that Policy has been implemented for the year under review and will be implemented for the coming year.

During the year under review, the Company has complied with the principles and provisions relating to Directors' remuneration in the UK Corporate Governance Code and this Remuneration Report has been prepared in accordance with Schedule 8 of the Large & Medium-sized Companies and Groups (Accounts and Reports) (Amendment) Regulations 2013. This includes the malus and clawback provisions for short- and long-term incentives granted since 2016, as detailed in last year's Remuneration Report. In accordance with Section 439A of the Companies Act an advisory resolution to approve the Annual Report on Remuneration will be proposed at the Annual General Meeting (AGM) on 11 May 2018.

Remuneration Committee

The Remuneration Committee determines and agrees with the Board the framework or broad policy for the remuneration, including pension rights and any compensation payments, of the Group's executive Directors and the Chairman. The Committee's terms of reference are available on the Group's website.

The Remuneration Committee consults the CEO and invites him to attend meetings when appropriate. The Group Human Resources Director attends meetings of the Committee by invitation. The Committee also had access to advice from the CFO. The Company Secretary acts as secretary to the Committee. No executive Director or other attendee is present when his or her own remuneration is being discussed.

Membership of the Committee is shown on page 79.

1. Policy report

Key principles of the executive Directors' Remuneration Policy

The Remuneration Committee aims to ensure that all the remuneration packages offered by Morgan are competitive and designed to promote the long-term success of the Company by ensuring that we are able to attract, retain and motivate executive Directors and senior executives of the right calibre to create value for shareholders.

The policy of the Committee is to ensure that a significant proportion of the total remuneration opportunity is performance-related, with an appropriate balance between short- and long-term performance, and is based on the achievement of measurable targets that are relevant to, and support the business strategy.

The Remuneration Committee will keep the Remuneration Policy under periodic review to ensure it remains aligned with the Group's strategy, and in line with the principles set out in the UK Corporate Governance Code in relation to Directors' remuneration. This includes ensuring that performance-related elements are transparent, stretching and rigorously applied, as well as reflecting the guidance of institutional investors and their representative bodies.

Summary of Morgan Advanced Materials plc's Remuneration Policy for executive Directors

This section of the Report sets out the current Remuneration Policy for executive Directors and non-executive Directors. This Policy remains unchanged from that which was approved by shareholders at the 2016 AGM and which is effective for a period of up to three years from that date. The only amendments to the Policy Report published in the 2016 annual report are:

- To update the data used in the pay-for-performance scenario analysis to provide figures for 2018.
- To remove references to pension arrangements for executive Directors who joined before 1 August 2011 (as both executive Directors joined after this date).
- To remove references to the move from ROCE* to ROIC* in the LTIP from 2017 onwards.
- To update page references.

Purpose and link to strategy	Operation	Opportunity	Performance metrics
Fixed pay			
Base salary Provides the fixed element of the remuneration package. Set at competitive levels against the market.	Base salaries are generally reviewed each January, with reference to the salary levels at companies of similar sector, size and complexity. The Committee also considers individual contribution and the range of salary increases applying across the Group when determining increases.	Base salary increases are applied in line with the outcome of the annual review. Salaries in respect of the year under review (and for the following year) are disclosed in the Annual Report on Remuneration. Salary increases for executive Directors will normally be within the range of increases for the general employee population over the period of this Policy. Where increases are awarded in excess of those for the wider employee population, for example in instances of sustained strong individual performance, if there is a material change in the responsibility, size or complexity of the role, or if an individual was intentionally appointed on a below-market salary, the Committee will provide the rationale in the relevant year's Annual Report on Remuneration.	Not applicable.
Pension Provides post-retirement benefits for participants in a cost-efficient manner.	Defined contribution scheme (and/or a cash allowance in lieu thereof).	Defined contributions (or cash in lieu thereof) will be up to 20% of salary.	Not applicable.
Benefits Designed to be competitive in the market in which the individual is employed.	Can include Company car/car allowance, health insurance and, where appropriate, relocation allowances and other expenses.	Benefits values vary by role and are reviewed periodically relative to market. It is not anticipated that the cost of benefits provided will change materially year on year over the period for which this Policy will apply. The Committee retains the discretion to approve a higher cost in exceptional circumstances (eg relocation expenses, expatriation allowances etc) or in circumstances where factors outside the Group's control have changed materially (eg market increases in insurance costs). Benefits in respect of the year under review are disclosed in the Annual Report on Remuneration.	Not applicable.

Remuneration report continued

Purpose and link to strategy	Operation	Opportunity	Performance metrics
Variable pay			
Annual bonus Incentivises the achievement of specific goals over the short term that are also aligned to the long-term business strategy.	Performance measures are set by the Committee at the start of the year and are weighted to reflect a balance of financial and strategic objectives. At the end of the year, the Remuneration Committee determines the extent to which these have been achieved. To the extent that the performance criteria have been met, up to 67% of the resulting annual bonus is paid in cash. The remaining balance is deferred into shares and released after a further period of three years, subject to continued employment only. Cash and deferred share bonuses awarded for performance in 2016 onwards will be subject to malus and clawback. Further details of our Malus and Clawback Policy are set out at the end of this table.	Up to 150% of salary. The payout for threshold performance may vary year on year, but will not exceed 25% of the maximum opportunity.	Bonuses for the executive Directors may be based on a combination of financial and non-financial measures. The weighting of non-financial performance will be capped at 30% of the maximum opportunity. Further details are set out in the Annual Report on Remuneration on pages 79 to 89.
Long-Term Incentive Plan (LTIP) Aligns the interests of executives and shareholders by delivering shares to executive Directors and other senior executives as a reward for outstanding long-term performance.	The Remuneration Committee has the authority each year to grant an award under the LTIP. The award levels and performance conditions on which vesting depends are reviewed prior to the start of each award cycle to ensure they remain appropriate. For awards made in 2016 onwards, vested shares may be subject to a post-vesting holding period. Details of any such holding period will be disclosed in the Annual Report on Remuneration for the year in which the relevant award is made. Awards are subject to malus and/or clawback for a period of five years from the date of grant. Further details of our Malus and Clawback Policy are set out at the end of this table.	The LTIP provides for a conditional award of shares up to an annual limit of 250% of salary. 25% of an award vests for achievement of the threshold level of performance.	The vesting of awards is usually subject to continued employment and the Group's performance over a three-year performance period. This is currently based on a combination of TSR, EPS and ROIC* measures. The Committee has discretion to extend the performance period and adjust the measures, their weighting, and performance targets prior to the start of each cycle to ensure they continue to align with the Group's strategy. Further details of the measures attached to the LTIP awarded in the year under review (and the coming year) are set out in the Annual Report on Remuneration on pages 70 to 89.
Sharesave A voluntary scheme open to all UK employees which aligns the interests of participants with those of shareholders through any growth in the value of shares.	An HMRC-approved scheme where employees may save up to a monthly savings limit out of their own pay towards options granted at up to a 20% discount. Options may not be exercised for three years.	Up to the savings limit as determined by HMRC from time to time, across all Sharesave schemes in which an individual has enrolled.	None.

Malus and Clawback Policy

Malus and clawback will apply on the annual bonus and LTIP (as set out on page 74) in cases of misconduct or material misstatement in the published results of the Group or where, as a result of an appropriate review of accountability, a participant has been deemed to have caused in full or in part a material loss for the Group as a result of reckless, negligent or wilful actions or inappropriate values or behaviour. Cash bonuses will be subject to clawback, with deferred shares subject to malus over the deferral period. LTIP awards are subject to malus over the vesting period and clawback from the vesting date to the fifth anniversary of grant.

Payments under existing awards

The Company will honour any commitment entered into, and Directors will be eligible to receive payment from any award granted, prior to the approval and implementation of the current Remuneration Policy detailed in this Report (ie before 6 May 2016), even if these commitments and/or awards fall outside the above Policy. The Company will also honour any commitment entered into at a time prior to an individual becoming a Director if, in the opinion of the Committee, the payment was not in consideration for the individual becoming a Director of the Company. Details of these awards are, and will be, disclosed in the Annual Report on Remuneration.

Difference in policy between executive Directors and other employees

The Remuneration Policy for other employees is based on principles broadly consistent with those described in this Report for the executive Directors. Annual salary reviews across the Group take into account business performance, local pay and market conditions, and salary levels for similar roles in comparable companies. All executives are eligible to participate in an annual bonus scheme. Opportunities and performance measures vary by organisational level, geographical region and an individual's role. Other senior executives participate in the LTIP on similar terms to the executive Directors, although award sizes and performance measures may vary according to each individual, and by organisational level. Below this level, executives are eligible to participate in the LTIP and other share-based incentives by annual invitation.

Use of discretion

To ensure fairness and align executive Director remuneration with underlying individual and Group performance, the Committee may exercise its discretion to adjust, upwards or downwards, the outcome of any short- or long-term incentive plan payment (within the limits of the relevant Plan Rules) for corporate or exceptional events including, but not limited to: corporate transactions, changes in the Group's accounting policies, minor or administrative matters, internal promotions, external recruitment, terminations, etc. Any adjustments in light of corporate events will be made on a neutral basis, to not be to the benefit or detriment of participants.

Any use of discretion by the Committee during the financial year under review will be detailed in the relevant Annual Report on Remuneration.

Performance measure selection

The Committee considers carefully the selection of performance measures at the start of each performance cycle, taking into consideration the macro-economic environment as well as specific Group strategic objectives.

Annual bonus measures are selected to closely reinforce the Group's short-term KPIs. Because these can change from year to year (in line with the Remuneration Policy), information on the rationale for the selection of bonus measures for each year has been moved to the Annual Report on Remuneration.

LTIP performance measures are reviewed periodically to ensure they continue to align with the Company's strategy, as well as provide an appropriate balance between growth and returns, internal and external performance, and absolute and relative performance.

For 2018 awards, the TSR element of the LTIP award will continue to comprise two parts. One half of the TSR element will vest subject to the Group's performance relative to a TSR benchmark comprising the 109 constituents of the FTSE All-Share Industrials Index. This benchmark is robust to merger and acquisition activity and comprises companies that are subject to the same market influences as Morgan Advanced Materials plc. The remaining half of the TSR element will vest subject to Morgan's performance relative to a TSR benchmark comprising 16 listed international carbon, ceramics and other materials companies. This benchmark was selected to complement the FTSE All-Share Industrials Index with a group of companies that better reflect Morgan's business, the markets in which Morgan operates and the geographical footprint of the Group. For each part of the TSR award, the vesting performance range is calibrated to be stretching and in line with common market practice for FTSE TSR-based long-term incentives.

EPS targets are set taking account of multiple relevant reference points, including internal forecasts, external expectations for future EPS performance at both Morgan Advanced Materials plc and its closest sector peers, and typical EPS performance ranges at other FTSE 350 companies. LTIP EPS performance ranges are set to represent demanding and challenging performance targets over the three-year performance period.

For 2018, it is proposed to continue to use ROIC* (first introduced to the 2017 LTIP cycle). The Board considers ROIC* to be the most appropriate measure of value creation because it measures the efficiency of Morgan's total capital base. For the 2018 LTIP cycle, ROIC* will continue to be calculated as follows:

$$\frac{\text{EBITA* pre-specific adjusting items}}{\text{12-month average (third-party working capital + total fixed assets + total intangible fixed assets)}}$$

ROIC* targets are set using a similar approach to the EPS targets, after consideration of external reference points and reflecting the returns required to meet and exceed the Group's internal strategic plan.

Remuneration report continued

Share ownership guidelines

In order to encourage alignment with shareholders, individual shareholding guidelines are operated for executive Directors. Under such guidelines, executive Directors are encouraged to build and maintain over time a shareholding in the Company equivalent to at least 200% of basic salary.

Current executive Director shareholdings are set out in the Annual Report on Remuneration on page 86.

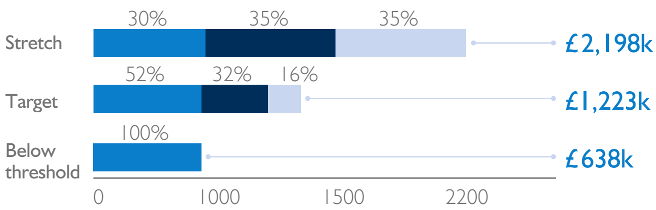
External appointments

With the approval of the Board in each case, and subject to the overriding requirements of the Group, executive Directors may accept external appointments as non-executive Directors of other companies and retain any fees received. Details of external directorships held by executive Directors along with fees retained are provided on page 83.

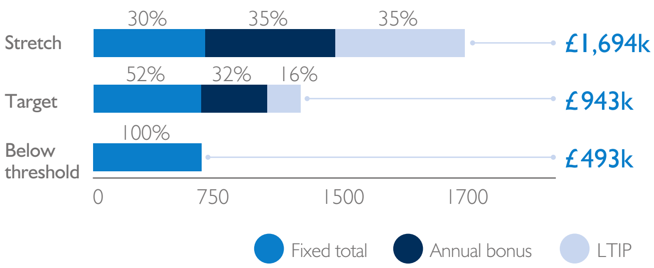
Pay-for-performance: scenario analysis

The graphs below provide detailed illustrations of the potential future reward opportunity for executive Directors, and the potential mix between the different elements of remuneration under three different performance scenarios; 'Below threshold', 'Target' and 'Stretch'. These have been updated to illustrate the potential opportunity under the 2018 packages proposed for executive Directors.

Pete Raby (CEO)



Peter Turner (CFO)



Potential reward opportunities illustrated above are based on the Policy, which was approved at the 2016 AGM, applied to the annual base salary in effect at 1 January 2018. For the annual bonus, the amounts illustrated are those potentially receivable in respect of performance for 2018 (before mandatory deferral into shares). The LTIP is based on the face value of awards to be granted in 2018 (150% of salary). It should be noted that any awards granted under the LTIP in a year do not normally vest until the third anniversary of the date of grant. This illustration is intended to provide further information to shareholders on the relationship between executive pay and performance. The value of the LTIP assumes no increase in the underlying value of the shares, and actual amounts delivered will be further influenced by changes in factors such as the Company's share price and the value of dividends paid. The following assumptions have been made in compiling the above charts:

Scenario	Annual bonus	LTIP	Fixed pay
Stretch	Maximum annual bonus.	Performance warrants full vesting (100% of the award).	Latest disclosed base salary, pension and benefits.
Target	On-target annual bonus.	Performance warrants threshold vesting (25% of the award).	
Below threshold	No annual bonus payable.	Nil vesting.	

Details of executive Directors' service contracts

The executive Directors are employed under contracts of employment with Morgan Advanced Materials plc. Contracts may be terminated on 12 months' notice given by the Company or on six months' notice given by the executive Director concerned. The following table shows the date of the contract for each executive Director who served during the year:

				Notice period	
Executive Director	Position	Date of appointment	Date of service agreement	From employer	From employee
Pete Raby	CEO	1 August 2015	30 January 2015	12 months	6 months
Peter Turner	CFO	11 April 2016	30 March 2016	12 months	6 months

Exit Payments Policy

The Group's policy on exit payments is to limit severance payments on termination to pre-established contractual arrangements comprising base salary and any other statutory payments only. In the event that the employment of an executive Director is terminated, any compensation payable will be determined in accordance with the terms of the service contract between the Company and the employee, as well as the rules of any incentive plans.

The Group may terminate the employment of an executive Director by making a payment in lieu of notice equal to base salary, together with the fair value of any other benefits to which the executive is contractually entitled under his or her service agreement, for the duration of the notice period.

The Remuneration Committee will exercise discretion in making appropriate payments in the context of outplacement, settling legal claims or potential legal claims by the departing executive Director, including any other amounts reasonably due to the executive Director, for example, to meet the legal fees incurred by the executive Director in connection with the termination of employment, where the Company wishes to enter into a settlement agreement and the individual must seek independent legal advice.

On termination of an executive Director's service contract, the Remuneration Committee will consider the departing Director's duty to mitigate his or her loss when determining the timing of when any payment in lieu of notice will be made. There is no automatic entitlement to bonus or the vesting of long-term incentives on termination. However, the table that follows summarises the Policy on how awards under the annual bonus and LTIP will normally be treated in specific circumstances, with the final treatment remaining subject to Committee discretion:

Treatment of awards on cessation of employment and a change of control

Reason for cessation	Calculation of vesting/payment	Time of vesting
	Annual bonus	
All reasons	The Committee may determine that a bonus is payable on cessation of employment, and the Committee retains discretion to determine that the bonus should be paid wholly in cash. The amount of bonus payable will be determined in the context of the time served during the performance year, the performance of the Group and of the individual over the relevant period, and the circumstances of the Director's loss of office. If Group or individual performance has been poor, or if the individual's employment has been terminated in circumstances amounting to misconduct, no bonus will be payable.	
	Mandatory deferred bonus share awards	
Injury, disability, death, redundancy, retirement, or other such event as the Committee determines	Awards will normally vest in full (ie not pro-rated for time).	At the normal vesting date, unless the Committee decides that awards should vest earlier (eg in the event of death).
Change of control	Awards will normally vest in full (ie not pro-rated for time). Awards may alternatively be exchanged for equivalent replacement awards, where appropriate.	On change of control.
All other reasons	Awards normally lapse.	Not applicable.
	LTIP awards	
Injury, disability, death, redundancy, retirement, or other such event as the Committee determines	Awards will normally be pro-rated for time and will vest based on performance over the original performance period (unless the Committee decides to measure performance to the date of cessation).	At the normal vesting date, unless the Committee decides that awards should vest earlier (eg in the event of death).
Change of control	LTIP awards will be pro-rated for time and will vest subject to performance over the performance period to the change of control. LTIP awards may alternatively be exchanged for equivalent replacement awards, where appropriate.	On change of control.
All other reasons	Awards normally lapse.	Not applicable.

The Remuneration Committee retains discretion, where permitted by the scheme rules, to alter these default provisions on a case-by-case basis, following a review of circumstances and to ensure fairness for both shareholders and participants.

Remuneration report continued

Approach to recruitment remuneration

External appointment

In cases of hiring or appointing a new executive Director from outside the Group, the Committee may make use of all existing components of remuneration, as follows:

Pay element	Policy on recruitment	Maximum
Salary	Based on: the size and nature of the responsibilities of the proposed role; current market pay levels for comparable roles; the candidate's experience; implications for total remuneration; internal relativities; and the candidate's current salary.	–
Pension	Option to join the defined contribution scheme, and/or to receive a cash allowance.	–
Benefits	As described in the Policy table and may include, but are not limited to, car, medical insurance, and relocation expenses and/or allowances.	–
Sharesave	New appointees will be eligible to participate on identical terms to all other UK employees.	In line with HMRC limits.
Annual bonus	As described in the Policy table and typically pro-rated for proportion of year served; performance measures may include strategic and operational objectives tailored to the individual in the financial year of joining.	150% of salary.
LTIP	New appointees may be granted awards under the LTIP on similar terms to other executives.	250% of salary.
Other	The Remuneration Committee may make an award under a different structure under the relevant Listing Rule to replace incentive arrangements forfeited on leaving a previous employer. Any such award would have a fair value no higher than that of the awards forfeited, taking into account relevant factors including performance conditions, the likelihood of those conditions being met and the proportion of the vesting period remaining. Details of any such award will be disclosed in the first Annual Report on Remuneration following its grant.	–

Internal promotion to the Board

In cases of appointing a new executive Director by way of internal promotion, the Policy will be consistent with that for external appointees detailed above. Where an individual has contractual commitments made prior to their promotion to executive Director, the Company will continue to honour these arrangements even if there are instances where they would not otherwise be consistent with the prevailing executive Director Remuneration Policy at the time of promotion.

Chairman and non-executive Directors' Remuneration Policy

Purpose and link to strategy	Operation	Opportunity	Performance metrics
Annual fee To attract and retain high-calibre non-executive Directors.	Annual fees paid to the Chairman and non-executive Directors are reviewed periodically. An additional fee is payable for the Senior Independent Director, and also in respect of Committee chairmanship. Currently paid 100% in cash.	Annual fees are applied in line with the outcome of each periodic review.	None

None of the non-executive Directors has a service contract with the Company. They do have letters of appointment. The non-executive Directors do not participate in any of the incentive, share or share option plans. The dates relating to the appointments of the Chairman and non-executive Directors who served during the reporting period are as follows:

Non-executive Director	Position	Date of appointment	Date of letter of appointment	Date of election/re-election
Andrew Shilston	Chairman	8 May 2012	30 March 2012	5 May 2017
Helen Bunch	Non-executive Director	24 February 2016	19 January 2016	5 May 2017
Douglas Caster	Non-executive Director	14 February 2014	15 January 2014	5 May 2017
Laurence Mulliez	Non-executive Director	6 May 2016	4 April 2016	5 May 2017
Rob Rowley[1]	Non-executive Director	14 February 2014	15 January 2014	5 May 2017
Jane Aikman[2]	Non-executive Director	31 July 2017	27 April 2017	n/a

1. Rob Rowley stepped down from the Board on 31 July 2017.
2. Jane Aikman was appointed a Director on 31 July 2017 and a resolution to propose her election will be voted on by shareholders at the 2018 AGM.

Consideration of employment conditions

The Group seeks to promote and maintain good relations with employee representative bodies – including trade unions and works councils – as part of its broader employee engagement strategy, and consults on matters affecting employees and business performance as required in each case by law and regulation in the jurisdictions in which the Group operates. In making remuneration decisions, the Remuneration Committee also considers the pay and employment conditions elsewhere in the Group, but the Committee does not currently consult with employees specifically on the executive Remuneration Policy and framework. Prior to the annual salary review, the Remuneration Committee is briefed by the Director of Group Human Resources about pay increase data that individual business units will consider when deciding local pay awards for their specific businesses and countries. This also forms part of the considerations for determining executive Director remuneration.

Consideration of shareholder views

The Committee considers shareholder views received during the year and at the AGM each year, as well as guidance from investor representative bodies more broadly, in shaping its Remuneration Policy. The Committee keeps the Remuneration Policy under regular review, to ensure it continues to reinforce the Group's long-term strategy, and aligns executive Directors' interests with those of shareholders. It is the Remuneration Committee's policy to consult with major shareholders prior to any major changes to its executive Remuneration Policy.

2. Annual report on remuneration

The following section provides details of how the Remuneration Policy was implemented during the year.

Remuneration Committee membership in 2017

The Remuneration Committee is currently composed of five non-executive Directors. Each of the non-executive Directors is regarded by the Board as independent, except the Chairman of the Company who was considered independent upon appointment. The Remuneration Committee met four times during the year. Attendance at meetings by individual members is detailed in the Corporate Governance Report on page 59.

Committee members

Douglas Caster (Chairman)
Andrew Shilston
Helen Bunch
Laurence Mulliez
Jane Aikman[1]
Rob Rowley[2]

1. Jane Aikman was appointed to the Board and the Committee on 31 July 2017.
2. Rob Rowley stepped down from the Board and the Committee on 31 July 2017.

Remuneration report continued

Summary of shareholder voting at the 2016 and 2017 AGM

The following table shows the results of the latest binding vote on the Remuneration Policy (at the 2016 AGM) and advisory vote on the 2016 Annual Report on Remuneration (at the 2017 AGM).

Resolution	For	Against	Withheld[1]
Remuneration Policy (at the 2016 AGM)	98.86%	1.14%	932,484
Annual Report on Remuneration (at the 2017 AGM)	99.02%	0.98%	76,842

1. Votes 'withheld' are not votes in law and, therefore, have not been included in the calculation of the proportion of votes 'for' or 'against' the resolution.

Single total figure of remuneration for executive Directors

The auditor is required to report on the information in this table.

The table below sets out a single figure for the total remuneration received by each executive Director for the year ended 31 December 2017 and the prior year.

	Pete Raby		Peter Turner	
	2017	2016	**2017**	2016
1. Salary	**£495,000**	£470,000	**£392,700**	£278,878
2. Benefits	**£13,482**	£13,482	**£12,070**	£8,767
3. Bonus	**£529,650**	£208,210	**£420,189**	£145,241
4. LTIP	**£66,987**	–	**–**	–
5. Pension	**£99,000**	£94,000	**£78,540**	£55,776
6. Other	**–**	£1,800	**–**	–
Total	**£1,204,119**	£787,492	**£903,449**	£488,662

The figures have been calculated as follows:

1. Base salary: amount earned for the year. The 2016 remuneration figure for Peter Turner reflects the amount earned from when he joined the Group on 11 April 2016.
2. Benefits: the taxable value of benefits received in the year. Includes private medical insurance and a company car (or car allowance).
3. Annual bonus: the total bonus earned on performance during the year.
4. LTIP: the estimated value on 31 December 2017 of 2015 LTIP shares vesting in 2018 subject to performance over the three-year period ended 31 December 2017. Figure based on the average share price for the three months to 31 December 2017 of 319.29p. Peter Turner did not participate in the 2015 LTIP as he joined the Group in 2016.
5. Pension: the figure is a cash allowance of 20% of base pay in lieu of pension.
6. Other: for Pete Raby comprises the value of Sharesave options granted in the year, based on the embedded value at grant (20% of the grant-date share price multiplied by the number of options granted). Full details of executive Director Sharesave options are available on pages 87 to 88 of the Annual Report on Remuneration.

Incentive outcomes for the year ended 31 December 2017

Annual bonus in respect of 2017 performance

Targets for the annual bonus are set by the Remuneration Committee, taking into account the short- and long-term requirements of the Group. Challenging goals are set, which must be met before any bonus is paid. This approach is intended to align executive reward with shareholder return by rewarding the achievement of 'stretch' targets.

For 2017, the bonus targets for the executive Directors were split between Group EBITA* before restructuring (weighted 40%), cash generation* (weighted 40%) and individual strategic personal objectives (weighted 20%). The targets were set to incentivise the executive Directors to deliver stretching profit and cash performance for the Group.

In addition to the achievement of the targets set, in considering any awards to be made, the Committee also takes into account the quality of the overall performance of the Group.

The table that follows sets out retrospectively the assessment of performance relative to the 2017 bonus targets for the executive Directors. Actual bonus payments are shown in the single total figure of remuneration table above.

Performance measure	% of maximum bonus element	Performance range		Actual performance outcome	% payout of element	% salary earned
		Threshold (0% payout)	Maximum (100% payout)			
Group EBITA*[1]	40%	£105.6m	£121.1m	£116.4m	70%	42%
Cash generation*[1]	40%	£133.9m	£149.0m	£160.7m	70%[2]	42%
Personal objectives						
Pete Raby	20%	Please see narrative below for further details			77%	23%
Peter Turner	20%	on objectives and performance against these			77%	23%

Overall outcome	Maximum bonus (% salary)	% of salary earned			Total outcome	Total payable
		Group EBITA*[1]	Cash generation*[1]	Personal objectives		
Pete Raby	150%	42%	42%	23%	107%	£529,650
Peter Turner	150%	42%	42%	23%	107%	£420,189

1. For both the EBITA* and cash generation* metrics, there was a straight-line payout between the threshold and maximum figures and all figures were calculated using 2017 budgeted exchange rates.
2. Not withstanding the excellent performance as a whole for cash generation*, three of the quarterly cash targets, introduced in 2017, were missed. As a result, pay out of this element was reduced from 100% to 70%.

Pete Raby's personal objectives were based on seven main priorities: (1) drive improvement in the safety culture and behaviours for the Group, (2) talent management, (3) review the top level structure of the business, (4) technology priorities and performance, (5) sales effectiveness, (6) portfolio management and (7) operational improvements. Payout of this element was adjudicated at 76.7% of the maximum, reflecting that Pete delivered against the majority of these priorities during 2017. This notably included the development of the talent pool, the delivery of operational improvements across the Group and the review and development of the top level structure of the Group and wider organisation to support strategy execution, optimise capability levels and enhance growth.

Peter Turner's personal objectives were based on six main priorities: (1) drive improvement in the safety culture and behaviours for the Group, (2) strengthen financial controls (3) support operational improvement, (4) execute pension strategy, (5) develop the finance team and (6) improve cash management. Payout of this element was adjudicated at 76.7% of the maximum, reflecting that Peter delivered against the majority of these objectives. This notably included the strengthening of financial controls across the Group and the execution of the pension strategy. Further, Peter Turner supported the continued development of the Group corporate strategy and execution against that, partnering with the CEO.

2015 LTIP award vesting

Awards granted to executive Directors in 2015 were subject to relative TSR performance, EPS growth and Group ROCE* over a three-year period ended 31 December 2017. The EPS target (applying to one-third of each award) required three-year EPS growth of 6% per annum for 30% of that element to vest, rising to full vesting for EPS growth of 15% pa or higher. Over the period Morgan Advanced Materials plc's actual EPS growth was below threshold and accordingly none of the EPS element of the award will vest under this criterion.

The TSR target (applying to one-third of each award) required Morgan Advanced Materials plc's three-year TSR performance to rank at median against constituents of the FTSE All-Share Industrials Index for 30% of that element to vest, rising to full vesting if Morgan Advanced Materials plc's TSR ranked at or above the upper quartile against this Index. Morgan Advanced Materials plc's TSR was 23.6%, which was at the 37th percentile versus the FTSE All-Share Industrials Index. Accordingly, none of the TSR element of the award will vest under this criterion.

The Group ROCE* target (applying to the remaining one-third of each award) required three-year Group ROCE* of 27% for 30% of that element to vest, rising to full vesting for Group ROCE* of 33% or higher. Morgan Advanced Materials plc's Group ROCE* was 28.4%, which resulted in 46.3% of this element vesting.

This combined performance resulted in a partial vesting of the 2015 awards based on 15.4% achievement of maximum.

Details of the awards to executive Directors are set out in the table below:

Director[1]	Maximum potential LTIP award	Maximum potential LTIP-CSOP award	LTIP award vested	LTIP-CSOP award vested	LTIP-CSOP award exercised	Date of vesting
Pete Raby	127,543	8,696	19,641	1,339	–	3 August 2018

1. Peter Turner had not joined the Board in 2015 and therefore did not participate in this cycle.

For the purposes of the 2015 LTIP award, the financial results were adjusted to neutralise the effects of divestments in 2017.

Remuneration report continued

The interest in the 2015 LTIP retained by Andrew Hosty (who left the Group on 8 January 2016) will vest in line with performance conditions and has been pro-rated according to time served. The vested amount of Andrew Hosty's 2015 LTIP award will be 15.4% of 31,905 shares.

2015 recruitment award to Pete Raby

As disclosed in the 2015 Remuneration Report, an award of 114,351 Ordinary shares in the Company (valued on the date of award at £400,000, calculated using the share price on 3 August 2015 of £3.4980) was made to Pete Raby on 3 August 2015 in connection with his recruitment. This award was granted in accordance with the Recruitment Policy, and was made in recognition of the fair value of incentive awards which he forfeited on leaving his former employer. The second tranche of this award (comprising 57,175 shares) vested on 31 December 2017. There were no performance conditions attached to this award, reflecting the structure of the award forfeited by Pete Raby on joining Morgan.

Pension

The auditor is required to report on this information.

Pete Raby and Peter Turner each receive a cash allowance in lieu of pension of 20% of base salary.

Single total figure of remuneration for non-executive Directors

The auditor is required to report on the information in this table.

The table below sets out a single figure for the total remuneration received by each non-executive Director in respect of the year ended 31 December 2017 and the prior year.

	Andrew Shilston		Douglas Caster[1]		Helen Bunch[2]		Laurence Mulliez[2,3]	
	2017	2016	**2017**	2016	**2017**	2016	**2017**	2016
1. Fee	**£182,100**	£178,500	**£63,448**	£63,000	**£47,940**	£39,890	**£48,432**	£30,670
2. Benefits	–	–	–	–	–	–	–	–
3. Pension	–	–	–	–	–	–	–	–
4. Bonus	–	–	–	–	–	–	–	–
5. LTIP	–	–	–	–	–	–	–	–
6. Other	–	–	–	–	–	–	–	–
Total	**£182,100**	£178,500	**£63,448**	£63,000	**£47,940**	£39,890	**£48,432**	£30,670

	Jane Aikman[4]		Rob Rowley[5]	
	2017	2016	**2017**	2016
1. Fee	**£23,523**	–	**£32,632**	£55,000
2. Benefits	–	–	–	–
3. Pension	–	–	–	–
4. Bonus	–	–	–	–
5. LTIP	–	–	–	–
6. Other	–	–	–	–
Total	**£23,523**	–	**£32,632**	£55,000

1. Douglas Caster stepped down as Senior Independent Director on 8 December 2017.
2. Helen Bunch and Laurence Mulliez were appointed to the Board on 24 February 2016 and 6 May 2016 respectively. Their fees for 2016 relate to the period from appointment to 31 December 2016.
3. Laurence Mulliez was appointed Senior Independent Director on 8 December 2017.
4. Jane Aikman was appointed to the Board on 31 July 2017, and as Chairman of the Audit Committee on appointment.
5. Rob Rowley stepped down from the Board on 31 July 2017.

Scheme interests awarded in 2017

2017 LTIP awards

In 2017, Pete Raby and Peter Turner were granted awards under the LTIP as follows:

		Value of awards at grant		
Executive Director	Number of LTIP shares granted[1]	£	As % of 2017 annualised salary	Date of vesting
Pete Raby	236,074	742,500	150%	31 March 2020
Peter Turner	187,285	589,050	150%	31 March 2020

1. Calculated using the award price of £3.1452 (the average share price over the five dealing days from 24 to 30 March 2017).

The Committee discusses and reviews the performance criteria for new three-year LTIP awards before they are granted. For the awards granted in 2017, the Committee considered the balance of measures in light of the Group's business plan and shareholder feedback, and decided to maintain the equal (one-third) weighting of the three performance criteria.

For the 2017 LTIP award, the TSR element was split into two parts. One-half of this element will vest based on Morgan's TSR performance relative to the constituents of the FTSE All-Share Industrial Index (comprising 115 companies) and one-half will vest based on Morgan's TSR performance relative to a tailored comparator group of 16 industry comparators.

The table below sets out the targets attaching to the 2017 LTIP awards:

TSR vs FTSE All-Share Industrials Index	% of award that vests	TSR performance vs peer group	% of award that vests	EPS growth	% of award that vests	Group ROIC*	% of award that vests
Upper quartile	16.67%	Upper quartile	16.67%	11% pa	33.33%	19%	33.33%
Median	4.17%	Median	4.17%	4% pa	8.33%	16%	8.33%
Below median	Nil	Below median	Nil	<4% pa	Nil	<16%	Nil

For executive Directors, a two-year holding period was introduced in relation to the 2017 LTIP. Dividends accrue over the vesting period and are paid on any shares that vest.

2017 Deferred Bonus Plan awards

In 2017, 33% of the annual bonus results for Pete Raby and Peter Turner (for performance in the 2016 financial year) were deferred into shares under the Deferred Bonus Plan (DBP), in line with Morgan's Remuneration Policy. The following DBP awards were granted:

	Value of awards at grant		
Executive Director	Number of DBP shares granted	Value of award £	Date of vesting
Pete Raby	21,751	68,709	3 March 2020
Peter Turner	15,173	47,930	3 March 2020

Calculated using the award price of £3.1588, being the average share price for the five days prior to the award date.

Exit payments made in year

The auditor is required to report on this information.

No exit payments were made to executive Directors during the 2017 financial year.

Payments to past Directors

The auditor is required to report on this information.

As disclosed in the 2016 Remuneration Report, Kevin Dangerfield was eligible for a time pro-rated cash bonus for the period 1 January to 31 March 2016. The resulting bonus was paid on 28 February 2017.

External appointments

No external appointments were held by either executive Director in the 2017 financial year.

Implementation of Remuneration Policy for 2018

Base salary

In line with the Remuneration Policy, executive Directors' salaries were reviewed by the Committee and increased for 2018. The table below shows the base salaries in 2017, and those that took effect from 1 January 2018:

		Base salary at:		
Executive Director	Position	1 January 2018	1 January 2017	Increase
Pete Raby	CEO	£520,000	£495,000	5.05%
Peter Turner	CFO	£400,600	£392,700	2.00%

The increase awarded to Pete Raby reflects the Committee's policy to bring Pete's salary into line with market over time, reflecting his continued strong performance in the role. Future above-inflation increases will continue to be based on Pete Raby's performance in the role and the performance of the Group. The rationale for any future increases will be disclosed in the relevant Annual Report on Remuneration.

In agreeing the increase awarded to Peter Turner, the Committee has been mindful of the range of increases to be awarded across the Group of 2% – 2.5% on average in 2018, as well as Peter Turner's strong performance in the role.

Remuneration report continued

Pension

Pete Raby and Peter Turner will continue to receive a cash allowance in lieu of pension worth 20% of salary.

Annual bonus in respect of 2018 performance

The maximum bonus opportunity remains at 150% of salary with 33% of any bonus result deferred into shares for a further three-year period. The performance measures attached to the annual bonus remain unchanged from 2017, as follows:

EBITA* – 40%

Cash generation* – 40% (measured against quarterly cumulative targets as well as over the complete financial year. For every quarterly target that is missed, the payout warranted for full-year performance under this element will be reduced by 10%)

Strategic personal objectives – 20%

The actual performance targets set at the beginning of the performance period are not disclosed as they are considered commercially sensitive at this time, given the close link between performance measures and the Group's longer-term strategy. This is particularly relevant in the context of some of the Group's close and unlisted competitors who are not required to disclose such information, and for whom the assumptions in our targets would provide valuable information in the current trading year. We will disclose these targets retrospectively, at such time as these targets have become less commercially sensitive, and within three years of the end of the performance year.

2018 LTIP awards

In March 2018, Pete Raby and Peter Turner will be granted awards under the 2018 LTIP with face value of 150% of their respective base salaries for 2018. The three-year performance period over which performance will be measured began on 1 January 2018 and will end on 31 December 2020. Further details of the awards will be disclosed in next year's Report.

The performance measures are detailed below:

- The relative TSR element of the LTIP will remain equally split between two comparator benchmarks to ensure the relevance and robustness of the TSR element. The two comparator benchmarks are the constituents of the FTSE All-Share Industrials Index and the following tailored group of international sector comparators: BASF, Carborundum, Ibiden, Imerys, Krosaki Harima, LyondellBasell, Magnesita, Mersen, Minerals Technologies, RHI, SGL Carbon, Sumitomo Chemical, Toyo Tanso, Vesuvius, Victrex and Worley Parsons.
- Each TSR element will operate independently, with vesting determined based on Morgan's TSR rank relative to constituents of each TSR benchmark. The performance range for each element will remain median to upper quartile.
- The EPS and ROIC* performance ranges will remain unchanged, at 4%-11% p.a. for EPS and 16%-19% for ROIC*. The Committee believes these ranges appropriately support the Group's strategy for sustainable long-term growth over the next three years whilst continuing to represent suitably demanding targets.
- For all three measures, awards will continue to vest on a straight-line basis between threshold and maximum, with 25% of each element vesting at threshold.
- For the 2018 LTIP cycle, and in response to shareholder feedback, executive Directors will be required to hold any vested 2018 LTIP awards for an additional two-year period. Vested awards that are subject to the holding period will remain subject to clawback in line with our Policy, but will not be forfeitable on cessation of employment.

Chairman and non-executive Director fees

The Chairman's and non-executive Directors' fees were reviewed in December 2017. The following fees will apply in 2018:

Role	2017 fee pa	2018 fee pa	Increase
Chairman	£182,100	£185,750	2.0%
Non-executive Director	£47,940	£48,900	2.0%
Committee Chairman (additional fee, excluding Nomination Committee)	£8,000	£8,000	0%
Senior Independent Director (additional fee)	£8,000	£8,000	0%

Percentage change in CEO remuneration

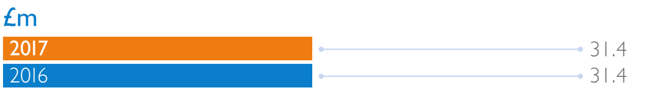
The table below shows the percentage change in CEO remuneration (from 2016 to 2017) compared to the average percentage change in remuneration for other UK-based employees over the same period. The UK employee workforce was chosen as a suitable comparator group as the CEO is based in the UK (albeit with a global role and responsibilities) and pay changes across the Group vary widely depending on local market conditions. Although similar remuneration principles apply across the wider Group, pay decisions for this subset are impacted by similar external market forces (eg wage inflation, local practice with respect to the provision of benefits, etc.).

	CEO			
Elements of remuneration	**2017**	2016	% change	% change in 2017 (vs 2016) for other employees
Base salary received during the year	**£495,000**	£470,000	5.3%	2.5%
Taxable benefits (excluding pension)	**£13,482**	£13,482	0%	11.0%
Annual bonus	**£529,650**	£208,210	154.0%	24.0%

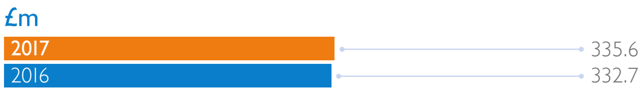
Relative importance of spend on pay

The graphs below show shareholder distributions (ie dividends and share buybacks) and total employee pay expenditure for the financial years ended 31 December 2016 and 31 December 2017, and the percentage change year on year.

Shareholder distributions



Total employee pay expenditure



Total employee pay across the Group has increased by 0.9% to £335.6 million (2016: £332.7 million).

Advisers

Kepler was appointed by the Committee in 2010 as its executive remuneration adviser and was retained during the most recent financial year. In 2017, Kepler (now branded Mercer Kepler), provided independent advice on performance measurement, the setting of incentive targets, TSR analysis and the structure of long-term incentives, and provided market data in respect of senior executive remuneration and non-executive Director fees. Kepler reports directly to the Chairman of the Remuneration Committee and does not provide any other material non remuneration-related services to the Group (nor does Kepler's parent company, Mercer), and is considered to be independent.

Kepler is a signatory to the Remuneration Consultants Group's voluntary Code of Conduct.

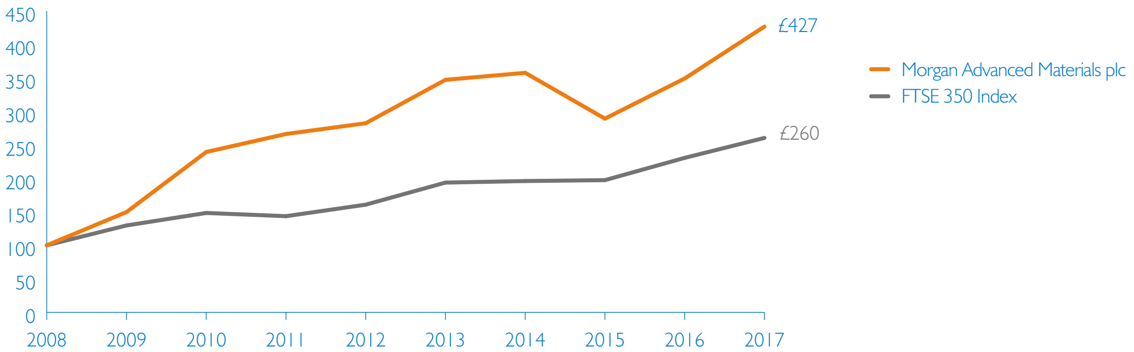
Fees paid during the year to advisers for advice to the Remuneration Committee, charged on a time and materials basis, were as follows:

Adviser	Fees (including expenses, excluding VAT)
Kepler	£37,776

Remuneration report continued

Comparison of Company performance

The graph below shows the value, at 31 December 2017, of £100 invested in Morgan Advanced Materials plc's shares on 31 December 2008 compared with the current value of the same amount invested in the FTSE 350 Index. The FTSE 350 Index – of which the Company is a constituent – has been chosen because it is widely followed by the UK's investment community and easily tracked over time.



The table below details the CEO's 'single figure' of remuneration over the same eight-year period.

CEO	2010 M Robertshaw	2011 M Robertshaw	2012 M Robertshaw	2013 M Robertshaw	2014 M Robertshaw	2015 P Raby	2016 P Raby	2017 P Raby
CEO single figure	£1,045,984	£3,371,302	£1,285,556	£648,932	£1,001,448	£788,252	£787,492	£1,204,119
Annual bonus (% max)	100%	100%	0%	0%	65%	50%	29.5%[1]	71.3%
BDSMP vesting (% max)	0%	60%	100%	0%	0%	n/a	n/a	n/a
LTIP vesting (% max)	0%	100%	50%	0%	0%	n/a	n/a	n/a

1. Figure represents percentage achievement of maximum opportunity. Bonus maximum as a percentage of salary increased to 150% of base salary in 2016 compared to 100% in previous years.

Directors' interests in shares

Shares owned outright

The auditor is required to report on the information in this table.

The following table shows the shares held by each person who was a Director of Morgan Advanced Materials plc as at 31 December 2017 (together with shares held by their connected persons) in the Ordinary share capital of the Company:

	As at 1 January 2017 or date of joining	As at 31 December 2017 or on leaving[1]	As at 27 February 2018[1]
Executive Directors			
Pete Raby	41,438	71,646	71,646
Peter Turner	40,000	40,000	40,000
Non-executive Directors			
Andrew Shilston	70,000	70,000	70,000
Laurence Mulliez	1,260	1,260	1,260
Douglas Caster	18,000	18,000	18,000
Helen Bunch	925	925	925
Jane Aikman[2]	–	–	–
Rob Rowley[3]	5,000	5,000	–

1. The date of this Report.
2. Jane Aikman was appointed to the Board on 31 July 2017.
3. Rob Rowley stepped down from the Board on 31 July 2017.

As at 26 March 2018, the Directors' interests in shares had not changed since the end of the period under review.

Executive Directors' shareholding guidelines

The table below shows the shareholding of each executive Director against their respective shareholding guideline as at 31 December 2017 or date of leaving.

	Shareholding guideline (% 2017 salary)	Shares owned outright	Shares subject to performance[1]	Performance-tested but unvested shares	Shares subject to DBP deferral[2]	Options vested but unexercised[3]	Current shareholding (% 2017 salary)[4]	Guideline met?
Pete Raby	200%	71,646	664,335	–	21,751	3,862	49%	Building
Peter Turner	200%	40,000	426,494	–	15,173	–	34%	Building

1. 2015, 2016 and 2017 LTIP and LTIP-CSOP awards.
2. Estimated net number of shares deferred under the DBP.
3. Options granted under the Sharesave scheme for Pete Raby.
4. Based on an executive Director's 2017 salary and the share price at 29 December 2017 of 337.30 pence, comprising shares owned outright and shares subject to deferral.

Unless otherwise stated, figures given in the tables on pages 87 to 89 are for shares or interests in shares.

Pete Raby

The auditor is required to report on the information in this table.

LTIP

Status at 31 December 2017	Plan	As at 1 January 2017	Allocations during the year	Released during the year	Lapsed during the year	As at 31 December 2017	Market price at date of allocation	Market price on date of release	Performance period
Subject to performance conditions	2015	127,543	–	–	–	127,543	344.98p	–	01.01.15 – 31.12.17
	2015 funding	8,696	–	–	–	8,696	344.98p	–	01.01.15 – 31.12.17
	2016	292,022	–	–	–	292,022	241.42p	–	01.01.16 – 31.12.18
Subject to performance conditions	2017	–	236,074	–	–	236,074	314.52p	–	01.01.17 – 31.12.19

Share options

Status at 31 December 2017	Plan	As at 1 January 2017	Allocations during the year	Released during the year	Lapsed during the year	As at 31 December 2017	Market price at date of allocation	Market price on date of release	Performance period
Subject to performance conditions	2015 LTIP-CSOP	8,696	–	–	–	8,696	344.98p	–	01.01.15 – 31.12.17
Subject to continued service only	2016 Sharesave	3,862	–	–	–	3,862	233.00p	–	01.12.16 – 30.11.19

Recruitment award

Status at 31 December 2017	Plan	As at 1 January 2017	Allocations during the year	Released during the year	Lapsed during the year	As at 31 December 2017	Market price at date of allocation	Market price on date of release	Performance period
Subject to continued service only	2015 – tranche	57,176[1]	–	57,176	–	–	349.80p	286.85p	–
	2015 – tranche	57,175[2]	–	57,175	–	–	349.80p	334.39p	–

Total interests in share plans

As at 1 January 2017	As at 31 December 2017
555,170[2,5]	698,644[3,4,5]

1. Tranche 1 of the recruitment award to Pete Raby was released on 3 January 2017.
2. Tranche 2 of the recruitment award to Pete Raby was subsequently released on 29 December 2017.
3. Includes a funding award of 8,696 shares to be used to the extent required to pay the exercise price arising on exercise of the CSOP and therefore not transferable to Pete Raby.
4. Includes Tranche 2 of the recruitment award to Pete Raby.
5. Includes 2017 deferred bonus award.

Remuneration report continued

Peter Turner

The auditor is required to report on the information in this table.

LTIP

Status at 31 December 2017	Plan	As at 1 January 2017	Allocations during the year	Released during the year	Lapsed during the year	As at 31 December 2017	Market price at date of allocation	Market price on date of release	Performance period
Subject to performance conditions	2016	226,783	–	–	–	226,783	241.42p	–	01.01.16 – 31.12.18
	2016 Funding	12,426	–	–	–	12,426	241.42p	–	01.01.16 – 31.12.18
Subject to performance conditions	2017	–	187,285	–	–	187,285	314.52p	–	01.01.17 – 31.12.19

Share options

Status at 31 December 2016	Plan	As at 1 January 2017	Allocations during the year	Released during the year	Lapsed during the year	As at 31 December 2017	Market price at date of allocation	Market price on date of release	Performance period
Subject to performance conditions	2016 LTIP-CSOP	12,426	–	–	–	12,426	241.42p	–	01.01.16 – 31.12.18

Total interests in share plans

As at 1 January 2017	As at 31 December 2017
251,635[1,2]	454,093[1,2]

1. Includes a funding award of 12,426 shares to be used to the extent required to pay the exercise price arising on exercise of the CSOP and therefore not transferable to Peter Turner.
2. Includes deferred bonus award.

Details of plans

LTIP

Plan	Details
2015, 2016, 2017	2015 awards granted to executive Directors are subject to relative TSR, EPS and ROCE*. The EPS target (applying to a third of each award) requires three-year EPS growth above a threshold of 6% pa of that element to vest, commencing at 30% vesting for that element, and rising to full vesting for EPS growth of 15% pa or higher. The TSR target (applying to another third of each award) requires Morgan Advanced Materials' three-year TSR performance to rank at median against the FTSE All-Share Industrials Index for 30% of that element to vest, rising to full vesting if Morgan Advanced Materials' TSR ranks at or above the upper quartile against the companies in this Index. The ROCE* element was set at a 27%-33% range, vesting on a straight-line basis, with 30% of the measure vesting at the 27% threshold. ROCE* is measured in the final year of the performance period. The 2016 awards were on the same basis as the 2015 awards described above, except that the EPS target range was 4%–11% pa. The ROCE* target remained at 27%–33%. Also the vesting at threshold for each element reduced from 30% to 25%. The TSR element was extended to include two comparator groups as detailed earlier in this Report with vesting at threshold also reduced to 25% of that element. The 2017 awards were on the same basis as the 2016 awards except that the ROCE* measure was replaced by ROIC*, as detailed earlier in this Report. The ROIC* range for 2017 was 16%-19%.

Share options

Plan	Details
LTIP – CSOP	LTIP 2015: The CEO's award was structured as an Approved Performance Share Plan (APSP) and comprised three elements: (i) HMRC-approved options (CSOP) over shares to the value of up to £30,000 with an exercise price of 345 pence per share; (ii) an LTIP award in the form of a conditional award of free shares to the value of the remainder of the award above this limit; and (iii) a funding award, also in the form of a conditional award of free shares, over such numbers of shares whose value at exercise at the approved option equals up to £30,000. The provisions of these CSOP options, funding awards and LTIP awards was linked so that the maximum aggregate number of shares that could be acquired on exercise of LTIP and CSOP awards (the funding award being used to pay the exercise price arising on exercise of the CSOP) was limited to that number of shares that had a market value on the date of the awards equal to 100% of Pete Raby's 2015 annual salary. Vested funding awards were not transferable to the participant. LTIP 2016: The CEO's award was structured as an LTIP award in the form of a conditional award of free shares. The award to the CFO was an APSP award following the same structure as described above but with an exercise price of 241 pence per share. LTIP 2017: The awards to the CEO and CFO were structured as LTIP awards in the form of a conditional award of free shares.
2015 Sharesave 2016 Sharesave 2017 Sharesave	HMRC-approved all-employee Sharesave scheme. Exercise price set at 20% discount to share price on date of grant. Options vest after three years of continuous service and must be exercised within six months of vesting. Details of options held by Directors under Sharesave are outlined in the individual Director shareholding tables above.

Deferred Bonus Plan

Plan	Details
2017	Mandatory deferral of one-third of gross bonus result relating to the previous year, which is provided as a conditional award of shares of the equivalent value. The award vests on the third anniversary of the award date and is subject to forfeiture if the executive Director leaves before the vesting date. The award is also subject to clawback provisions.

Other transactions involving Directors are set out in note 26 (Related Parties) to the financial statements.

This Report was approved by the Board on 27 February 2018.

Signed on behalf of the Board

Douglas Caster
Committee Chairman

Other disclosures

The Directors' Report is required to be produced by law. The Financial Conduct Authority (FCA)'s Disclosure Guidance and Transparency Rules (DTRs) and Listing Rules (LRs) also require the Company to make certain disclosures.

Pages 54 to 93 inclusive (together with the sections of the Annual Report incorporated by reference) constitute a Directors' Report that has been drawn up and presented in accordance with applicable law, and the liabilities of the Directors in connection with that Report are subject to the limitations and restrictions provided by that law.

The Company

Legal form of the Company

Morgan Advanced Materials plc is a company incorporated in England and Wales with company number 286773.

Name change

The Company changed its name to Morgan Advanced Materials plc (from The Morgan Crucible Company plc) on 27 March 2013.

Annual General Meeting (AGM)

The Company's 2018 AGM will be held on Friday 11 May 2018 at the offices of Addleshaw Goddard LLP, Milton Gate, 60 Chiswell Street, London EC1Y 4AG. A circular incorporating the Notice of AGM accompanies this Annual Report.

Statutory disclosures

Amendment of the Articles of Association

The Company's constitution, known as the Articles of Association (the 'Articles'), is essentially a contract between the Company and its shareholders, governing many aspects of the management of the Company. It deals with matters such as the rights of shareholders, the appointment and removal of Directors, the conduct of the Board and general meetings and communications by the Company.

The Articles may be amended by special resolution of the Company's shareholders and are available on the Company's website at **www.morganadvancedmaterials.com**.

Appointment and replacement of Directors

The Articles provide that the Company may by ordinary resolution at a general meeting appoint any person to act as a Director, provided that notice is given of the resolution identifying the proposed person by name and that the Company receives written confirmation of that person's willingness to act as Director if he or she has not been recommended by the Board. The Articles also empower the Board to appoint as a Director any person who is willing to act as such. The maximum possible number of Directors under the Articles is 15. The Articles provide that the Company may by special resolution, or by ordinary resolution of which special notice is given, remove any Director before the expiration of his or her period of office. The Articles also set out the circumstances in which a Director shall vacate office. The Articles require that at each AGM any Director who was appointed after the previous AGM must be proposed for election by the shareholders. Additionally, any other Director who has not been elected or re-elected at one of the previous two AGMs must be proposed for re-election by the shareholders. The Articles also allow the Board to select any other Director to be proposed for re-election. In each case, the rules apply to Directors who were acting as Directors on a specific date selected by the Board. This is a date not more than 14 days before, and no later than, the date of the Notice of AGM.

Notwithstanding the provisions of the Articles, all the Directors will stand for election or re-election on an annual basis in compliance with the provisions of the UK Corporate Governance Code ('the Code'). Details of the skills, experience and career history of Directors in post as at the date of this Report, and the Board Committees on which they serve, can be found on pages 56 and 57.

Results and dividends

The total profit (profit attributable to owners of the parent and non-controlling interests) for the year ended 31 December 2017 was £113.9 million (2016: £58.5 million). Profit before taxation for the same period was £135.8 million (2016: £87.9 million). Revenue was £1021.5 million (2016: £989.2 million) and operating profit was £158.1 million (2016: £107.3 million). Basic earnings per share* from continuing operations was 37.8 pence (2016: 18.4 pence). Capital and reserves at the end of the year were £234.3 million (2016: £164.7 million). The total profit of £107.6 million will be transferred to equity.

The Directors recommend the payment of a final dividend at the rate of 7.0 pence per share on the Ordinary share capital of the Company, payable on 25 May 2018 to shareholders on the register at the close of business on 4 May 2018. Together with the interim dividend of 4.0 pence per share paid on 24 November 2017, this final dividend, if approved by shareholders, brings the total distribution for the year to 11.0 pence per share (2016: 11.0 pence).

Directors

All those who served as Directors at any time during the year under review are set out on pages 56 and 57, with the exception of Robert Rowley, who resigned from the Board on 31 July 2017.

Powers of the Directors

Subject to the Company's Articles, UK legislation and any directions given by special resolution, the business of the Company is managed by the Board, which may exercise all the powers of the Company.

Directors' interests

Details of Directors' interests (and their connected persons' beneficial interests) in the share capital of the Company are listed on page 86.

Directors' indemnities

The Company has entered into separate indemnity deeds with each Director containing qualifying indemnity provisions, as defined in Section 236 of the Companies Act 2006, under which the Company has agreed to indemnify each Director in respect of certain liabilities which may attach to each of them as a Director or as a former Director of the Company or any of its subsidiaries. The indemnity deeds were in force during the financial year to which this Directors' Report relates and are in force as at the date of approval of the Directors' Report.

Information required by LR 9.8.4R

There is no information required to be disclosed under LR 9.8.4R.

Overseas branches

As at 31 December 2017, the Company had branches as follows:

- MCE Finance Sarl (USA)
- Thermal Ceramics Europe (France)
- Morganite Australia Pty Limited (New Zealand)
- Morgan AM&T BV (Sweden and Belgium)
- Carbo San Luis SA (Peru)

Human resources

Details of the Group's human resources policies and employee involvement are set out on pages 52 to 53.

There are no agreements between the Company and its Directors or employees providing for compensation for loss of office or employment (whether through resignation, purported redundancy or otherwise) that occurs because of a takeover bid.

Research and development

During the year, the Group invested £34.3 million (2016: £29.2 million) in research and development. The Group did not capitalise any development costs in 2017 (2016: £nil).

Details of the Group's research and development during the year are set out on pages 18 to 19.

Greenhouse gas emissions

Details of the Group's annual greenhouse gas emissions are shown in the Environment, health and safety section on page 51.

Political donations

No political donations have been made. Morgan Advanced Materials plc has a policy of not making donations to any political party, representative or candidate in any part of the world.

Financial instruments

Details of the Group's use of financial instruments, together with information on policies and exposure to price, liquidity, cash flow, credit, interest rate and currency risks, can be found in note 20 on pages 131 to 139. All information detailed in this note is incorporated into the Directors' Report by reference and is deemed to form part of the Directors' Report.

Share capital and related matters

Share capital

The Company's share capital as at 31 December 2017 is set out in note 18 and on pages 128 to 129. The Company's Ordinary shares represent 99.85% of the total issued share capital, with the 5.5% Cumulative First Preference shares representing 0.04% and the 5.0% Cumulative Second Preference shares representing 0.11%. The rights and obligations attaching to the Company's Ordinary shares, and restrictions on the transfer of shares in the Company, are set out in the Articles.

Shareholders' rights

The holders of Ordinary shares are entitled: to receive dividends, when declared; to receive the Company's reports and accounts; to attend and speak at general meetings of the Company; to appoint proxies; and to exercise voting rights.

Details of the structure of the Company's Preference share capital and the rights attaching to the Company's Preference shares are set out in note 18 on pages 128 to 129.

No person holds securities in the Company carrying special rights with regard to control of the Company. The Company is not aware of any agreements between holders of securities that may result in restrictions on the transfer of securities or on voting rights.

Share allotment and repurchase authorities

The Directors were granted authority at the 2017 AGM to allot shares in the Company and to grant rights to subscribe for or convert any securities into shares in the Company up to (a) a nominal amount of £23,780,832 and (b) a nominal amount of £47,561,664 in connection with a rights issue (such amount to be reduced by any shares allotted under (a)). This authority is due to lapse at the 2018 AGM. At the 2018 AGM, shareholders will be asked to grant a similar allotment authority.

Two separate special resolutions will also be proposed to renew the Directors' powers to make non-pre-emptive issues for cash up to an aggregate nominal amount representing approximately 5% of the issued share capital as at the last practicable date before the publication of the 2018 Notice of AGM, and an additional 5% of the issued share capital which would be for use only in connection with acquisitions and specified capital investments.

The Directors sought authority at the 2017 AGM to repurchase shares in the capital of the Company up to a maximum aggregate number of Ordinary shares of 28,536,998. The Directors will seek to renew this authority at the 2018 AGM.

Employee share and share option schemes

The Company operates a number of employee share and share option schemes. Ninety-nine employees hold awards under the Morgan Advanced Materials plc Long-Term Incentive Plan, including share options held under the Approved Performance Share Plan, eight employees hold awards under the Morgan Advanced Materials Bonus Deferral Share Matching Plan and 416 employees participate in the Company's UK Sharesave scheme. Details of outstanding share awards and share options are given in note 21 on page 140 to 151.

All the Company's share schemes contain provisions relating to a change of control. Outstanding options and awards would normally vest and become exercisable on a change of control, subject to being pro-rated for time and to the satisfaction of any performance conditions at that time.

The Trustees of The Morgan General Employee Benefit Trust ('the Trust') have absolute and unfettered discretion in relation to voting any shares held in the Trust at any general meeting. Their policy is not to vote the shares. If any offer is made to shareholders to acquire their shares, the Trustees will have absolute and unfettered discretion on whether to accept or reject the offer in respect of any shares held by them.

Major shareholdings

As at 31 December 2017, the Company had been notified of the following, in accordance with DTR 5, from holders of notifiable interests representing 3% or more of the issued Ordinary share capital of the Company:

	Number of Ordinary shares	%[1]
Prudential Plc group of companies (M&G)	28,533,428	9.99
Ameriprise Financial Inc., and its group	24,186,489	8.48
AXA Investment Managers SA	22,707,707	7.96
Black Creek Investment Management Inc.	14,246,065	4.99
Harris Associates	14,119,504	4.95

1. Percentages are shown as a percentage of the Company's issued share capital as at 31 December 2017.

Note: As at 13 March 2018, there were no changes to the substantial shareholdings shown in the above table with the exception of the following: Black Creek Investment Management Inc, which notified the Company on 3 January 2018 that it had increased its interest to 14,317,373 shares representing 5.02% of the issued share capital; and BlackRock Inc. which notified the Company on 1 March 2018 that it had increased its interest to 14,292,286 shares representing 5.00% of the issued share capital.

Other disclosures continued

Transactions, contractual arrangements and post-balance sheet events

Significant agreements – change of control

The Group has a number of borrowing facilities provided by various financial institutions. The facility agreements generally include change of control provisions which, in the event of a change in ownership of the Company, could result in their renegotiation or withdrawal.

The most significant of such agreements are the UK five-year £200 million multi-currency revolving facility agreement, which was signed on 17 October 2014, and the privately placed Note Purchase and Guarantee Agreements signed on 15 December 2007 and 27 October 2016, for which the aggregate outstanding loan amounts are US$187 million and €60 million.

There are a number of other agreements that would take effect, alter or terminate upon a change of control of the Company following a takeover bid, such as commercial contracts and joint venture agreements. No such individual contract is considered to be significant in terms of its potential impact on the business of the Group as a whole.

Post-balance sheet events

There have been no material events since the year end.

Reporting, accountability and audit

Statement of Directors' responsibilities

The Directors are responsible for preparing the Annual Report and the Group and parent Company financial statements in accordance with applicable law and regulations.

Company law requires the Directors to prepare Group and parent Company financial statements for each financial year. Under that law they are required to prepare the Group financial statements in accordance with International Financial Accounting Standards (IFRSs) as adopted by the EU and applicable law and have elected to prepare the parent Company financial statements in accordance with UK Accounting Standards and applicable law (UK Generally Accepted Accounting Practice or UK GAAP).

A new UK GAAP accounting framework introduced by the Financial Reporting Council (FRC) became mandatorily effective for the financial statements of UK companies in 2015. Under this framework, the Company is required to prepare its parent Company financial statements on one of the bases permitted by the FRC.

As previously notified, the Company has chosen to adopt FRS 101 Reduced Disclosure Framework, which enables the Company to take advantage of the permitted election to utilise the disclosure exemptions allowed under FRS 101. The consolidated financial statements of the Group on pages 100 to 154 are prepared in accordance with EU-adopted IFRSs and are unaffected by this accounting framework. The Company proposes to continue to adopt the reduced disclosure framework of FRS 101 in its future financial statements.

Under company law the Directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and parent Company and of their profit or loss for that period.

In preparing each of the Group and parent Company financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently.
- make judgements and estimates that are reasonable and prudent.
- for the Group financial statements, state whether they have been prepared in accordance with IFRSs as adopted by the EU.
- for the parent Company financial statements, state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the parent Company financial statements.
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Group and the parent Company will continue in business.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the parent Company's transactions and disclose with reasonable accuracy at any time the financial position of the parent Company and enable them to ensure that its financial statements comply with the Companies Act 2006. They have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the Group and to prevent and detect fraud and other irregularities.

Under applicable law and regulations, the Directors are also responsible for preparing a Strategic Report, Directors' Report, Remuneration Report and Corporate Governance Statement that comply with that law and those regulations.

The Directors are responsible for the maintenance and integrity of the corporate and financial information included on the Company's website. Legislation in the UK governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

In its reporting to shareholders, the Board is satisfied that the Annual Report and Accounts, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy as required by the Code.

The Directors as at the date of this Report, whose names and functions are set out on pages 56 to 57, confirm that, to the best of their knowledge:

- the Group's financial statements, which have been prepared in accordance with IFRSs as adopted by the EU, give a true and fair view of the assets, liabilities, financial position and profit of the Group; and
- the management report (comprising the Directors' Report and the Strategic Report) includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal risks and uncertainties that it faces.

Scope of the reporting in this Annual Report

The Board has prepared a Strategic Report which provides an overview of the development and performance of the Group's business in the year ended 31 December 2017.

For the purposes of DTR 4.1.5R(2) and DTR 4.1.8, the Directors' Report on pages 54 to 93 and the Strategic Report on pages 10 to 53 comprise the management report, including the sections of the Annual Report and financial statements incorporated by reference.

Each Director holding office at the date of approval of this Directors' Report confirms that, so far as he or she is aware, there is no relevant audit information of which the Company's auditor is unaware, and that he or she has taken all steps that he or she ought to have taken as a Director to make himself or herself aware of any relevant audit information and to establish that the Company's auditor is aware of that information.

The Strategic Report, the Directors' Report and the Remuneration Report were approved by the Board on 27 February 2018.

For and on behalf of the Board

Stephanie Mackie
Company Secretary

27 February 2018

Morgan Advanced Materials plc
Quadrant, 55-57 High Street
Windsor
Berkshire SL4 1LP

Registered in England and Wales, No. 286773

Independent auditor's report to the members of Morgan Advanced Materials plc

1. Our opinion is unmodified

We have audited the financial statements of Morgan Advanced Materials plc ('the Company') for the year ended 31 December 2017 which comprise the Consolidated income statement, Consolidated statement of comprehensive income, Consolidated and company balance sheets, Consolidated and company statements of changes in equity, Consolidated statement of cash flows, and the related notes, including the accounting policies in note 1.

In our opinion:

- the financial statements give a true and fair view of the state of the Group's and of the parent Company's affairs as at 31 December 2017 and of the Group's profit for the year then ended;
- the Group financial statements have been properly prepared in accordance with International Financial Reporting Standards as adopted by the European Union;
- the parent Company financial statements have been properly prepared in accordance with UK accounting standards, including FRS 101 Reduced Disclosure Framework; and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006 and, as regards the Group financial statements, Article 4 of the IAS Regulation.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ('ISAs (UK)') and applicable law. Our responsibilities are described below. We believe that the audit evidence we have obtained is a sufficient and appropriate basis for our opinion. Our audit opinion is consistent with our report to the audit committee.

We were appointed as auditor by the directors on 4 October 2001. The period of total uninterrupted engagement is for the 17 financial years ended 31 December 2017. We have fulfilled our ethical responsibilities under, and we remain independent of the Group in accordance with, UK ethical requirements including the FRC Ethical Standard as applied to listed public interest entities. No non-audit services prohibited by that standard were provided.

Key audit matters: our assessment of risks of material misstatement

Key audit matters are those matters that, in our professional judgment, were of most significance in the audit of the financial statements and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by us, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. We summarise below the key audit matters, in decreasing order of audit significance, in arriving at our audit opinion above, together with our key audit procedures to address those matters and, as required for public interest entities, our results from those procedures. These matters were addressed, and our results are based on procedures undertaken, in the context of, and solely for the purpose of, our audit of the financial statements as a whole, and in forming our opinion thereon, and consequently are incidental to that opinion, and we do not provide a separate opinion on these matters.

Tax provisioning (£23.0 million (2016: £16.6 million))

Refer to page 66 Audit Committee report, pages 118 to 119 and 125 to 126 accounting policy note and financial disclosures.

The risk

Subjective estimate

Accounting for tax contingencies require the directors to make judgements and estimates in relation to tax issues and exposures given that the group operates in a number of tax jurisdictions, the complexities of transfer pricing and other international tax legislation and the time taken for tax matters to be agreed with the tax authorities.

Our response – Our procedures included:

Our tax expertise

Use of our own tax specialists to assess the group's tax positions, its correspondence with the relevant tax authorities, and to analyse and challenge the assumptions used to determine the level of tax provisions using our knowledge and experiences of the application of the international and local legislation by the relevant authorities and courts; and

Assessing transparency

Assessing whether the Group's tax disclosures are appropriate and in accordance with relevant accounting standards.

Our results

We considered the level of provisioning to be acceptable.

Environmental and other provisions and contingent liabilities (£5.0 million (2016: £5.6 million))

Refer to page 66 Audit Committee report, pages 151 and 152 accounting policy note and financial disclosures.

Subjective estimate

The amounts involved are potentially significant, and the application of accounting standards to determine the amount, if any, to be provided as a liability is inherently subjective.

Our response – our procedures included:

Enquiry of lawyers and experts

On all significant legal cases, assessment of correspondence with the Group's external counsel accompanied by formal confirmations from that counsel. We assessed the extent to which the Group's judgements as to whether provisions should be recorded and estimates of the amounts are a balanced assessment of the latest available information and the accuracy and reliability of the sources of that information.

We challenged judgements made in respect of environmental contingencies through discussions with the environmental experts engaged by the Group.

Assessing transparency

Assessing whether the Group's disclosures about provisions and contingent liabilities and the treatment of movements on provisions in the income statement for the year were appropriate.

Our results: We found the liabilities recognised, and the contingent liability disclosures made, to be acceptable.

UK Defined Benefit pension obligation (Group: £593.7 million; 2016: £588.7 million. Parent Company: £194.6 million; 2016: £194.4 million)

Refer to page 66 Audit Committee report, pages 140 to 149 accounting policy note and financial disclosures.

The risk

Subjective valuation

Small changes in the assumptions and estimates used to value the UK pension obligation (before deducting scheme assets) would have a significant effect on the Group's and parent company's net pension deficit.

Our response – Our procedures included:

Benchmarking assumptions

Challenging, with the support of our own actuarial specialists, the key assumptions applied, being the discount rate, inflation rate and mortality/life expectancy against externally derived data; and

Assessing transparency

Considering the adequacy of the Group's and parent company's disclosures in respect of the sensitivity of the deficit to these assumptions.

Our results

We found the valuation of the pension obligation to be acceptable.

We continue to perform procedures over the valuation of acquired customer relationship intangible assets. However, following the detailed impairment review performed in the prior year and considering performance of the GBU during 2017, we have not assessed this as one of the most significant risks in our current year audit and, therefore, it is not separately identified in our report this year. Likewise, we continue to perform procedures over the presentation of specific adjusting items. However, following an assessment of the nature of items included in this category for 2017, we have not assessed this as one of the most significant risks in our current year audit and, therefore, it is not separately identified in our report this year. As a result of these changes, the audit procedures over the valuation of the UK Defined Benefit pension obligation increased in relative significance to our overall audit approach.

Independent auditor's report to the members of Morgan Advanced Materials plc continued

Our application of materiality and an overview of the scope of our audit

Materiality for the Group financial statements as a whole was set at £3.5 million (2016: £3.5 million), determined with reference to a benchmark of group profit before tax, normalised to exclude this year's specific adjusting items as disclosed in note 6, of which it represents 3.9% (2016: 3.9%).

Materiality for the parent company financial statements as a whole was set at £3.325 million (2016: £3.5 million), determined with reference to a benchmark of Company total assets and chosen to be lower than materiality for the Group financial statements as a whole. It represents 0.3% (2016: 0.4%) of total assets.

We agreed to report to the Audit Committee any corrected or uncorrected identified misstatements exceeding £0.175 million, in addition to other identified misstatements that warranted reporting on qualitative grounds.

Of the Group's 115 (2016: 110) reporting components, we subjected 25 (2016: 26) to full scope audits for Group purposes and 11 (2016: 11) to specified risk-focused audit procedures, including over revenue, inventories, trade and other receivables, employee benefit obligations, provisions and taxation. The latter were not individually financially significant enough to require a full scope audit for group purposes, but did present specific individual risks that needed to be addressed.

The components within the scope of our work accounted for the following percentages of the Group's results:

	Number of Components	Group revenue	Group profit before tax	Group total assets
Audits for Group reporting purposes	25	55%	53%	65%
Specific risk focused audit procedures	11	24%	21%	17%
Total	**36**	**79%**	**74%**	**82%**
Total (2016)	37	81%	80%	86%

The remaining 21% of total group revenue, 26% of Group profit before tax and 18% of total group assets is represented by 79 of reporting components, none of which individually represented more than 5% of any of total group revenue, Group profit before tax or total Group assets. For these residual components, we performed analysis at an aggregated group level to re-examine our assessment that there were no significant risks of material misstatement within these.

The Group team instructed component auditors as to the significant areas to be covered, including the relevant risks detailed above and the information to be reported back. The Group team approved the component materialities, which ranged from £0.1 million to £2 million, having regard to the mix of size and risk profile of the Group across the components. The work on 35 of the 36 components (2016: 36 of the 37 components) was performed by component auditors and the rest, including the audit of the parent company, was performed by the Group team. The Group team performed procedures on the items excluded from normalised Group profit before tax.

The Group team visited 1 (2016: 4) component locations in the USA (2016: UK, USA, Italy and Brazil) to assess the audit risk and strategy. Telephone conference meetings were also held with these component auditors and all of the other locations that were not physically visited. At these visits and meetings, the findings reported to the Group team were discussed in more detail, and any further work required by the Group team was then performed by the component auditor.

Our audit of the parent company was undertaken to the materiality level specified above and was all performed at the Company's head office in Windsor, UK.

We have nothing to report on going concern

We are required to report to you if:

- we have anything material to add or draw attention to in relation to the directors' statement in note 1 to the financial statements on the use of the going concern basis of accounting with no material uncertainties that may cast significant doubt over the Group and Company's use of that basis for a period of at least twelve months from the date of approval of the financial statements; or
- the related statement under the Listing Rules set out on page 40 is materially inconsistent with our audit knowledge.

We have nothing to report in these respects.

2. We have nothing to report on the other information in the Annual Report

The directors are responsible for the other information presented in the Annual Report together with the financial statements. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except as explicitly stated below, any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether, based on our financial statements audit work, the information therein is materially misstated or inconsistent with the financial statements or our audit knowledge. Based solely on that work we have not identified material misstatements in the other information.

Strategic report and directors' report

Based solely on our work on the other information:

- we have not identified material misstatements in the strategic report and the directors' report;
- in our opinion the information given in those reports for the financial year is consistent with the financial statements; and
- in our opinion those reports have been prepared in accordance with the Companies Act 2006.

Directors' remuneration report

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

Disclosures of principal risks and longer-term viability

Based on the knowledge we acquired during our financial statements audit, we have nothing material to add or draw attention to in relation to:

- the directors' confirmation within the Viability statement that they have carried out a robust assessment of the principal risks facing the Group, including those that would threaten its business model, future performance, solvency and liquidity;
- the Principal Risks disclosures describing these risks and explaining how they are being managed and mitigated; and
- the directors' explanation in the Viability statement of how they have assessed the prospects of the Group, over what period they have done so and why they considered that period to be appropriate, and their statement as to whether they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the period of their assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

Under the Listing Rules we are required to review the Viability statement. We have nothing to report in this respect.

Corporate governance disclosures

We are required to report to you if:

- we have identified material inconsistencies between the knowledge we acquired during our financial statements audit and the directors' statement that they consider that the annual report and financial statements taken as a whole is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy; or
- the section of the annual report describing the work of the Audit Committee does not appropriately address matters communicated by us to the Audit Committee.

We are required to report to you if the Corporate Governance Statement does not properly disclose a departure from the eleven provisions of the UK Corporate Governance Code specified by the Listing Rules for our review.

We have nothing to report in these respects.

Independent auditor's report to the members of Morgan Advanced Materials plc continued

We have nothing to report on the other matters on which we are required to report by exception

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

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

We have nothing to report in these respects.

3. Respective responsibilities

Directors' responsibilities

As explained more fully in their statement set out on pages 92 to 93, the Directors are responsible for: the preparation of the financial statements including being satisfied that they give a true and fair view; such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error; assessing the Group and parent Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern; and using the going concern basis of accounting unless they either intend to liquidate the Group or the parent Company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud, other irregularities, or error, and to issue our opinion in an auditor's report. Reasonable assurance is a high level of assurance, but does not guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud, other irregularities or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements. The risk of not detecting a material misstatement resulting from fraud or other irregularities is higher than for one resulting from error, as they may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control and may involve any area of law and regulation not just those directly affecting the financial statements.

A fuller description of our responsibilities is provided on the FRC's website at **www.frc.org.uk/auditorsresponsibilities.**

Irregularities – ability to detect

We identified areas of laws and regulations that could reasonably be expected to have a material effect on the financial statements from our sector experience, through discussion with the directors and other management (as required by auditing standards).

We had regard to laws and regulations in areas that directly affect the financial statements including financial reporting (including related company legislation) and taxation legislation. We considered the extent of compliance with those laws and regulations as part of our procedures on the related financial statement items.

In addition we considered the impact of laws and regulations in the specific area of environmental legislation, recognising the nature of the group's operations. With the exception of any known or possible non-compliance, and as required by auditing standards, our work in respect of these was limited to enquiry of directors and other management and inspection of regulatory and legal correspondence. We considered the effect of any known or possible non-compliance in these areas as part of our procedures on the related financial statement items. Further detail in respect of environmental legislation is set out in the key audit matter disclosures in section 2 of this report.

We communicated identified laws and regulations throughout our team and remained alert to any indicators of non-compliance throughout the audit. This included communication from the group to component audit teams of relevant laws and regulations identified at a group level, with a request to report on any indicators of potential existence of non-compliance with relevant laws and regulations (irregularities) in these areas, or other areas directly identified by the component team.

As with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, or the override of internal controls.

4. The purpose of our audit work and to whom we owe our responsibilities

This report is made solely to the Company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the Company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and the Company's members, as a body, for our audit work, for this report, or for the opinions we have formed.

Anthony Sykes (Senior Statutory Auditor)
for and on behalf of KPMG LLP, Statutory Auditor

Chartered Accountants
15 Canada Square
London
E14 5GL

27 February 2018

Financial Statements

Contents

Aerospace

1 Thermal Ceramics

Thermal and fire protection

Our Superwool® and Kaowool® insulating papers protect aerospace components against fire risks.

2 Molten Metal Systems

Investment casting aerospace parts

Our crucibles and foundry products used in he non-ferrous investment casting of aerospace components.

3 Electrical Carbon

Starters and motors

Our carbon brushes are used in starters, alternators and fuel pump applications in aeroplanes.

4 Seals and Bearings

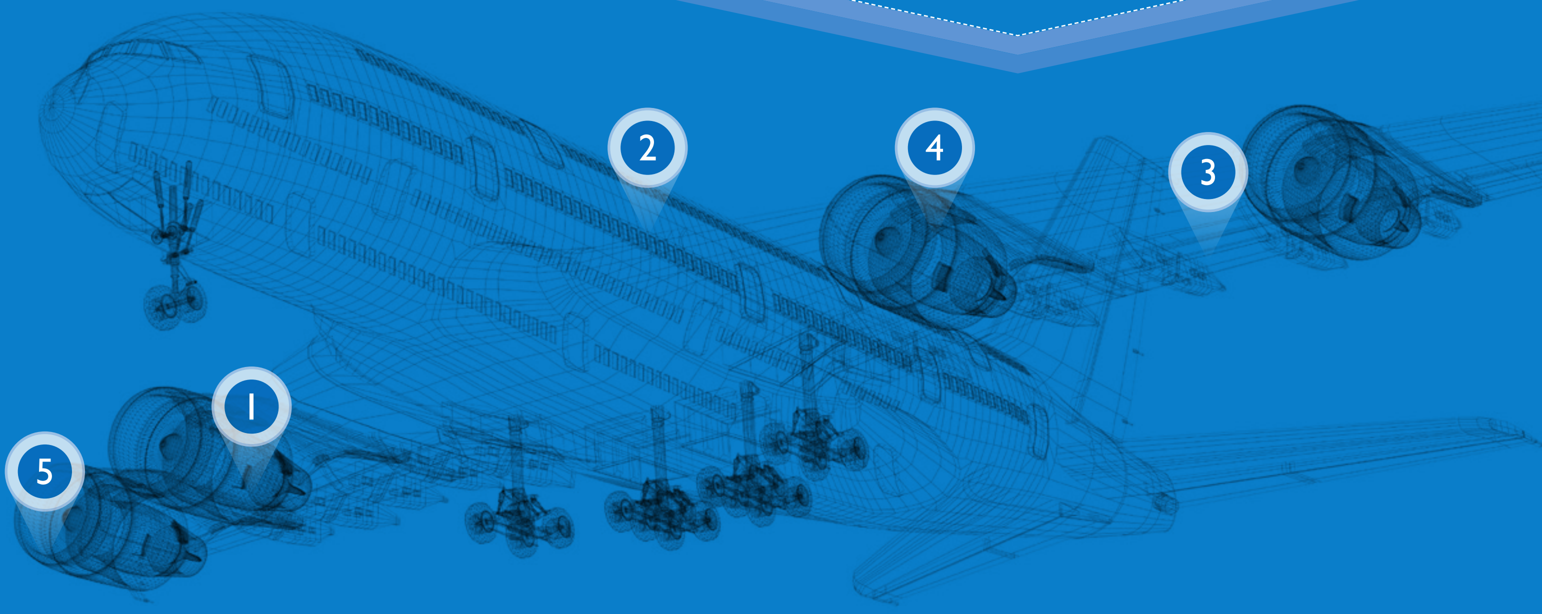
Fuel pumps

The seals and bearings we produce for in aerospace fuel pumps are hard wearing and can be machined to high tolerance.

5 Technical Ceramics

Aerospace engines

Our proprietary ceramic core materials, used in aerospace engine turbine blades, provide dimensional stability which reduces failure.



Consolidated income statement

for the year ended 31 December 2017

	Note	Results before specific adjusting items 2017 £m	Specific adjusting items[1] 2017 £m	Total 2017 £m	Results before specific adjusting items 2016 £m	Specific adjusting items[1] 2016 £m	Total 2016 £m
Revenue	3	1,021.5	–	1,021.5	989.2	–	989.2
Operating costs before restructuring costs and other items and amortisation/impairment of intangible assets	4	(901.8)	–	(901.8)	(871.3)	–	(871.3)
Profit from operations before restructuring costs and other items and amortisation/impairment of intangible assets		119.7	–	119.7	117.9	–	117.9
Restructuring costs and other items:							
Restructuring costs	4 & 6	–	–	–	(1.5)	–	(1.5)
Net pension settlement credit	6	–	–	–	–	6.8	6.8
Net profit on disposal of business	6	–	45.7	45.7	–	–	–
Gain on disposal of properties	4	–	–	–	0.5	–	0.5
Profit from operations before amortisation/impairment of intangible assets	3	119.7	45.7	165.4	116.9	6.8	123.7
Amortisation of intangible assets	4	(7.3)	–	(7.3)	(7.9)	–	(7.9)
Impairment of intangible assets	6	–	–	–	–	(8.5)	(8.5)
Operating profit	3	112.4	45.7	158.1	109.0	(1.7)	107.3
Finance income		1.8	–	1.8	2.3	–	2.3
Finance expense		(24.3)	–	(24.3)	(22.3)	–	(22.3)
Net financing costs	7	(22.5)	–	(22.5)	(20.0)	–	(20.0)
Share of profit of associate (net of income tax)	12	0.2	–	0.2	0.6	–	0.6
Profit before taxation		90.1	45.7	135.8	89.6	(1.7)	87.9
Income tax expense	8	(26.9)	5.0	(21.9)	(26.6)	(2.8)	(29.4)
Profit for the period		63.2	50.7	113.9	63.0	(4.5)	58.5
Profit for the period attributable to:							
Owners of the parent		56.9	50.7	107.6	56.8	(4.5)	52.3
Non-controlling interests		6.3	–	6.3	6.2	–	6.2
	9	63.2	50.7	113.9	63.0	(4.5)	58.5
Basic earnings per share							
Continuing operations				37.8p			18.4p
Diluted earnings per share							
Continuing operations				37.5p			18.3p
Dividends							
Interim dividend – pence				4.00p			4.00p
– £m				11.4			11.4
Proposed final dividend – pence				7.00p			7.00p
– £m				20.0			20.0

The proposed final dividend is based upon the number of shares outstanding at the balance sheet date.

1. Details of specific adjusting items are given in note 6.

Consolidated statement of comprehensive income

for the year ended 31 December 2017

	Translation reserve £m	Hedging reserve £m	Retained earnings £m	Total parent comprehensive income £m	Non-controlling interests £m	Total comprehensive income £m
2016						
Profit for the period	–	–	52.3	52.3	6.2	58.5
Items that will not be reclassified subsequently to profit or loss:						
Remeasurement gain on defined benefit plans	–	–	(68.1)	(68.1)	–	(68.1)
Tax effect of components of other comprehensive income not reclassified	–	–	0.6	0.6	–	0.6
	–	–	(67.5)	(67.5)	–	(67.5)
Items that may be reclassified subsequently to profit or loss:						
Foreign exchange translation differences	37.4	–	–	37.4	5.5	42.9
Net gain on hedge of net investment in foreign subsidiaries	(17.7)	–	–	(17.7)	–	(17.7)
Cash flow hedges:						
Change in fair value	–	(3.7)	–	(3.7)	–	(3.7)
Transferred to profit or loss	–	0.8	–	0.8	–	0.8
	19.7	(2.9)	–	16.8	5.5	22.3
Total comprehensive income, net of tax	19.7	(2.9)	(15.2)	1.6	11.7	13.3
2017						
Profit for the period	–	–	107.6	107.6	6.3	113.9
Items that will not be reclassified subsequently to profit or loss:						
Remeasurement loss on defined benefit plans	–	–	10.0	10.0	–	10.0
Tax effect of components of other comprehensive income not reclassified	–	–	(1.8)	(1.8)	–	(1.8)
	–	–	8.2	8.2	–	8.2
Items that may be reclassified subsequently to profit or loss:						
Foreign exchange translation differences	(11.0)	–	–	(11.0)	(1.3)	(12.3)
Net loss on hedge of net investment in foreign subsidiaries	–	–	–	–	–	–
Cash flow hedges:						
Change in fair value	–	2.6	–	2.6	–	2.6
Transferred to profit or loss	–	0.4	–	0.4	–	0.4
	(11.0)	3.0	–	(8.0)	(1.3)	(9.3)
Total comprehensive income, net of tax	(11.0)	3.0	115.8	107.8	5.0	112.8

Consolidated balance sheet

as at 31 December 2017

	Note	2017 £m	2016 £m
Assets			
Property, plant and equipment	10	297.8	303.7
Intangible assets	11	217.0	240.4
Investments	12	6.3	6.0
Other receivables		5.4	4.7
Deferred tax assets	13	9.1	6.1
Derivative financial assets tax assets		0.3	–
Total non-current assets		535.9	560.9
Inventories	14	141.8	148.2
Derivative financial assets		0.7	2.1
Trade and other receivables	15	194.2	205.7
Current tax receivable		6.7	–
Cash and cash equivalents	16	50.4	122.4
Total current assets		393.8	478.4
Total assets		929.7	1,039.3
Liabilities			
Interest-bearing loans and borrowings	19	192.7	204.0
Employee benefits: pensions	21	218.0	271.1
Provisions	22	6.1	2.3
Non-trade payables	17	3.4	1.8
Derivative financial liabilities		–	0.3
Deferred tax liabilities	13	10.5	8.3
Total non-current liabilities		430.7	487.8
Interest-bearing loans and borrowings and bank overdrafts	19	39.0	160.9
Trade and other payables	17	193.7	192.5
Current tax payable		23.0	16.6
Provisions	22	8.4	5.8
Derivative financial liabilities		0.6	11.0
Total current liabilities		264.7	386.8
Total liabilities		695.4	874.6
Total net assets		234.3	164.7
Equity			
Share capital	18	71.8	71.8
Share premium		111.7	111.7
Reserves		39.2	46.8
Retained earnings		(27.5)	(109.5)
Total equity attributable to equity owners of parent Company		195.2	120.8
Non-controlling interests		39.1	43.9
Total equity		234.3	164.7

The financial statements were approved by the Board of Directors on 27 February 2018 and were signed on its behalf by:

Pete Raby
Chief Executive Officer

Peter Turner
Chief Financial Officer

Consolidated statement of changes in equity

for the year ended 31 December 2017

	Share capital £m	Share premium £m	Translation reserve £m	Hedging reserve £m	Fair value reserve £m	Capital redemption reserve £m	Other reserves £m	Retained earnings £m	Total parent equity £m	Non-controlling interests £m	Total equity £m
Balance at 1 January 2016	71.8	111.7	(16.5)	0.4	(1.0)	35.7	11.4	(63.7)	149.8	36.6	186.4
Profit for the year	–	–	–	–	–	–	–	52.3	52.3	6.2	58.5
Other comprehensive income	–	–	19.7	(2.9)	–	–	–	(67.5)	(50.7)	5.5	(45.2)
Transactions with owners:											
Dividends	–	–	–	–	–	–	–	(31.2)	(31.2)	(4.4)	(35.6)
Equity-settled share-based payment transactions	–	–	–	–	–	–	–	0.8	0.8	–	0.8
Own shares acquired for share incentive schemes	–	–	–	–	–	–	–	(0.2)	(0.2)	–	(0.2)
Balance at 31 December 2016	71.8	111.7	3.2	(2.5)	(1.0)	35.7	11.4	(109.5)	120.8	43.9	164.7
Balance at 1 January 2017	**71.8**	**111.7**	**3.2**	**(2.5)**	**(1.0)**	**35.7**	**11.4**	**(109.5)**	**120.8**	**43.9**	**164.7**
Profit for the year	–	–	–	–	–	–	–	**107.6**	**107.6**	**6.3**	**113.9**
Other comprehensive income	–	–	**(11.0)**	**3.0**	–	–	–	**8.2**	**0.2**	**(1.3)**	**(1.1)**
Transactions with owners:											
Change in ownership of controlled interest without a change in control	–	–	–	–	–	–	–	**(3.3)**	**(3.3)**	–	**(3.3)**
Transfer between reserves	–	–	–	–	–	–	**0.4**	**(0.4)**	–	–	–
Dividends	–	–	–	–	–	–	–	**(31.4)**	**(31.4)**	**(9.8)**	**(41.2)**
Equity-settled share-based payment transactions	–	–	–	–	–	–	–	**1.7**	**1.7**	–	**1.7**
Own shares acquired for share incentive schemes	–	–	–	–	–	–	–	**(0.4)**	**(0.4)**	–	**(0.4)**
Balance at 31 December 2017	**71.8**	**111.7**	**(7.8)**	**0.5**	**(1.0)**	**35.7**	**11.8**	**(27.5)**	**195.2**	**39.1**	**234.3**

Details of the reserves are provided in note 18.

Consolidated statement of cash flows

for the year ended 31 December 2017

	Note	2017 £m	2016 £m
Operating activities			
Profit for the period		113.9	58.5
Adjustments for:			
Depreciation	4	30.6	29.5
Amortisation	4	7.3	7.9
Net financing costs	7	22.5	20.0
Profit on disposal of business	6	(45.7)	–
Share of profit from associate (net of income tax)	12	(0.2)	(0.6)
Profit on sale of property, plant and equipment		0.1	(0.4)
Income tax expense	8	21.9	29.4
Non-cash specific adjusting items included in operating profit		–	1.1
Equity-settled share-based payment expenses	4	1.7	0.8
Cash generated from operations before changes in working capital and provisions		152.1	146.2
(Increase)/decrease in trade and other receivables		(0.3)	(6.1)
(Increase)/decrease in inventories		(4.7)	1.4
Increase/(decrease) in trade and other payables		6.3	(0.1)
(Decrease)/increase in provisions		(3.0)	(5.2)
Payments to defined benefit pension plans	21	(48.9)	(14.5)
Cash generated from operations		101.5	121.7
Interest paid		(17.6)	(15.3)
Income tax paid		(24.5)	(22.2)
Net cash from operating activities		59.4	84.2
Investing activities			
Purchase of property, plant and equipment		(34.4)	(39.5)
Forward contracts used in net investment hedging		(7.7)	(12.3)
Purchase of investments		(1.6)	(1.0)
Proceeds from sale of property, plant and equipment		1.3	1.1
Loan repaid by associate		–	2.1
Interest received		1.0	2.2
Disposal of subsidiaries, net of cash disposed		78.1	–
Purchase of stake held by non-controlling interest		(1.5)	–
Net cash from investing activities		35.2	(47.4)
Financing activities			
Purchase of own shares for share incentive schemes		(0.4)	(0.2)
Net increase/(decrease) in borrowings	16	(114.1)	63.4
Payment of finance lease liabilities	16	(0.3)	(0.3)
Dividends paid to external plc shareholders		(31.4)	(31.4)
Proceeds from unclaimed dividends		–	0.2
Dividends paid to non-controlling interests		(9.8)	(4.4)
Net cash from financing activities		(156.0)	27.3
Net increase in cash and cash equivalents		(61.4)	64.1
Cash and cash equivalents at start of period		122.4	49.8
Effect of exchange rate fluctuations on cash held		(10.6)	8.5
Cash and cash equivalents at period end	16	50.4	122.4

A reconciliation of cash and cash equivalents to net borrowings is shown in note 16.

Notes to the consolidated financial statements

1. Accounting policies, estimates and judgments

Accounting policies

Morgan Advanced Materials plc (the 'Company') is a company incorporated in the UK under the Companies Act. The address of the registered office is given in 'Shareholder information' on page 176. The principal activities of the Company and its subsidiaries and the nature of the Group's operations are set out in the Strategic Report on pages 10 to 53.

The Group financial statements consolidate those of the Company and its subsidiaries (together referred to as the 'Group'), and include the Group's interest in associates. The parent Company financial statements present information about the Company as a separate entity and not about its Group. These consolidated financial statements have been drawn up to 31 December 2017. The Group maintains a 12-month calendar fiscal year ending on 31 December.

The Group financial statements have been prepared and approved by the Directors in accordance with International Financial Reporting Standards as adopted by the EU ('adopted IFRSs'). The Company has elected to prepare its parent Company financial statements in accordance with Financial Reporting Standard 101 Reduced Disclosure Framework; these are presented on pages 155 to 172.

Where possible the Group has set out individual accounting policies in the note to the consolidated financial statements most relevant to that accounting policy, including for property, plant and equipment, intangible assets and specific adjusting items.

Except for the changes set out in the Adoption of new and revised Standards section, the accounting policies set out below have been applied consistently to all periods presented in these Group financial statements.

(a) Measurement convention

The financial statements are prepared on the historical cost basis except that the following assets and liabilities are stated at their fair value: derivative financial instruments and financial instruments available-for-sale.

(b) Functional and presentation currency

The Group financial statements are presented in pounds sterling, which is the Company's functional currency.

(c) Basis of consolidation

(i) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(ii) Acquisitions

Business combinations are accounted for using the acquisition method as at the acquisition date, which is the date on which control is transferred to the Group. The Group measures goodwill as the acquisition-date fair value of the consideration transferred, including the amount of any non-controlling interest in the acquiree, less the net of the acquisition-date fair values of the identifiable assets acquired and liabilities assumed, including contingent liabilities as required by IFRS 3.

Consideration transferred includes the fair values of assets transferred, liabilities incurred by the Group to the previous owners of the acquiree, equity interests issued by the Group, contingent consideration, and share-based payment awards of the acquiree that are replaced in the business combination. Any contingent consideration payable is recognised at fair value at the acquisition date. Subsequent changes to the fair value of contingent consideration that is not classified as equity is recognised in the income statement.

Transaction costs that the Group incurs in connection with a business combination, such as finder's fees, legal fees, due diligence fees and other professional and consulting fees, are expensed as incurred.

(iii) Associates

Associates are those entities in which the Company has significant influence, but not control, over the financial and operating policies. Significant influence is presumed to exist when the Group holds between 20% and 50% of the voting power of another entity. Associates are accounted for using the equity method and are initially recognised at cost.

(iv) Transactions eliminated on consolidation

Intra-group balances and any unrealised gains and losses or income and expenses arising from intra-group transactions are eliminated in preparing the consolidated financial statements. Unrealised gains arising from transactions with associates are eliminated against the investment to the extent of the Group's interest in the associate. Unrealised losses are eliminated in the same way as unrealised gains, but only to the extent that there is no evidence of impairment.

Notes to the consolidated financial statements continued

1. Accounting policies, estimates and judgments continued

(d) Foreign currency

(i) Foreign currency transactions

Transactions in foreign currencies are translated at the foreign exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the balance sheet date are translated to pounds sterling at the foreign exchange rate ruling at that date. Foreign exchange differences arising on translation are recognised in the income statement. Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction. Non-monetary assets and liabilities denominated in foreign currencies that are stated at fair value are translated to pounds sterling at foreign exchange rates ruling at the dates the fair value was determined.

(ii) Financial statements of foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on consolidation, are translated to pounds sterling at foreign exchange rates ruling at the balance sheet date. The revenues and expenses of foreign operations are translated to pounds sterling at an average rate for the period where this approximates to the foreign exchange rates ruling at the dates of the transactions. Foreign exchange differences arising on retranslation since the adoption of IFRS are recognised directly in other comprehensive income.

(e) Impairment

The carrying amounts of the Group's assets, other than deferred tax assets, are reviewed at each balance sheet date to determine whether there is any indication of impairment. If any such indication exists, the asset's recoverable amount is estimated (see (i) below).

An impairment loss is recognised whenever the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. Impairment losses are recognised in the income statement.

Impairment losses recognised in respect of cash-generating units are allocated first to reduce the carrying amount of any goodwill allocated to cash-generating units (group of units) and then to reduce the carrying amount of the other assets in the unit (group of units) on a pro-rata basis.

When a decline in the fair value of an available-for-sale financial asset has been recognised directly in other comprehensive income and there is objective evidence that the asset is permanently impaired, the cumulative loss that had been recognised directly in other comprehensive income is recognised in profit or loss. A significant or prolonged decline in an available-for-sale financial asset's fair value below its cost is objective evidence of impairment. The amount of the cumulative loss that is recognised in profit or loss is the difference between the acquisition cost and current fair value, less any impairment loss on that financial asset previously recognised in profit or loss.

(i) Calculation of recoverable amount

The recoverable amount of the Group's investments in receivables carried at amortised cost is calculated as the present value of estimated future cash flows, discounted at the original effective interest rate (ie the effective interest rate computed at initial recognition of these financial assets). Receivables with a short duration are not discounted. The recoverable amount of other assets is the greater of their fair value less costs to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate largely independent cash inflows, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

(ii) Reversals of impairment

An impairment loss in respect of a receivable carried at amortised cost and other assets not listed below is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised.

An impairment loss in respect of an investment in an equity instrument classified as available-for-sale is not reversed through profit or loss. If the fair value of a debt instrument classified as available-for-sale increases and the increase can be objectively related to an event occurring after the impairment loss was recognised in profit or loss, the impairment loss will be reversed, with the amount of the reversal recognised in profit or loss.

An impairment loss in respect of goodwill is not reversed.

An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

1. Accounting policies, estimates and judgments continued

(f) Revenue

Revenue from the sale of goods in the course of ordinary activities is measured at the fair value of the consideration received or receivable, net of returns, trade discounts and volume rebates. Revenue is recognised when the significant risks and rewards of ownership have been transferred to the customer, recovery of the consideration is probable, the associated costs and possible return of goods can be estimated reliably, there is no continuing management involvement with the goods, and the amount of revenue can be measured reliably. If it is probable that discounts will be granted and the amount can be measured reliably, then the discount is recognised as a reduction of revenue as the sales are recognised.

(g) Dividends

Dividends payable are recognised as a liability in the Company's financial statements in the period in which the dividends are declared and approved. Dividends declared after the Balance sheet date are not recognised as there is no present obligation at that the Balance sheet date.

(h) Research and development

Expenditure on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is recognised in the income statement as an expense as incurred.

Expenditure on development activities, whereby research findings are applied to a plan or design for the production of new or substantially improved products and processes, is capitalised if the product or process is technically and commercially feasible and the Group has sufficient resources to complete development, use and sale of products or processes. The majority of the expenditure that the Group classifies as research and development relates to a gradual evolution of materials, products and processes over time through the activities of the Group's technology and application engineering teams, and can be characterised as incremental in nature, and is therefore not capitalised. The expenditure capitalised includes the cost of materials, direct labour and an appropriate proportion of overheads. Capitalised development expenditure is stated at cost less accumulated amortisation and impairment losses. Other development expenditure is recognised in the income statement as an expense as incurred.

Use of judgements and estimates

In preparing these consolidated financial statements, management has made judgements, estimates and assumptions that affect the application of the Group's accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to estimates are recognised prospectively.

Judgements

Information about judgements made in applying accounting policies that have the most significant effects on the amounts recognised in the consolidated financial statements is included in the following notes:

Note 6: Specific adjusting items

The Group separately presents specific adjusting items in the consolidated income statement which, in the Directors' judgment, need to be disclosed separately by virtue of their size and incidence in order for users of the consolidated financial statements to obtain a proper understanding of the financial information and the underlying performance of the business. These include the financial effect of items which occur infrequently, such as major individual restructuring projects. Determining whether an item is part of specific adjusting items requires judgment as to whether it meets the Group's definition as detailed in the accounting policy.

Assumptions and estimates

Assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the year ending 31 December 2018 is included in the following notes:

Note 21: Employee benefits: key actuarial assumptions

The principal actuarial assumptions applied to pensions are shown in note 21, including a sensitivity analysis. The actuarial evaluation of pension assets and liabilities is based on assumptions in respect of inflation, future salary increases, discount rates, returns on investments and mortality rates. Relatively small changes in the assumptions underlying the actuarial valuations of pension schemes can have a significant impact on the net pension liability included in the balance sheet.

Notes to the consolidated financial statements continued

1. Accounting policies, estimates and judgments continued

Other assumptions and estimates which are not considered to have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next 12 months include:

Taxation

The level of current tax and deferred tax recognised is dependent on the tax rates in effect at the balance sheet date, and on subjective judgments as to the outcome of decisions to be made by the tax authorities in the various tax jurisdictions around the world in which the Group operates. Deferred tax assets are recognised based on management's assessment of the extent to which they are recoverable.

The Group periodically assesses its liabilities and contingencies for all tax years open to audit based on the latest information available. The Group records its best estimate of these tax liabilities, including related interest charges. Whilst management believes it has adequately provided for the probable outcome of these matters, future results may include adjustments to these estimated tax liabilities and the final outcome of tax examinations may result in a materially different outcome than that assumed in the tax liabilities. Provisions are made against individual exposures taking into account the specific circumstances of each case, including the strengths of technical arguments, past experience with tax authorities, recent case law or rulings on similar issues and external advice received.

Note 22: Provisions

Note 22 contains information about provisions. Provisions for closure and restructuring costs, environmental issues and settlement of litigation are judgemental by their nature. Amounts provided are the Group's best estimate of exposure based on currently available information.

Impairment of intangible assets and goodwill

The Group tests annually whether goodwill has suffered any impairment. This process relies on the use of estimates of the future profitability and cash flows of its cash-generating units which may differ from the actual results delivered. In addition, the Group reviews whether identified intangible assets have suffered any impairment. Note 11 contains information about the assumptions relating to goodwill impairment tests, including a sensitivity analysis.

Credit risk

Note 20 contains information about the Group's exposure to credit risk, including a sensitivity analysis. The Group establishes both specific and general allowances for impairment losses against receivables. The general loss allowance is estimated based on historical data of payment statistics for similar financial assets.

Going concern

The Group's business activities, together with the factors likely to affect its future development, performance and position are set out in the Strategic Report on pages 10 to 53. The financial position of the Group, its cash flows, liquidity position and borrowing facilities, are described earlier in the Group Financial Review. In addition, note 20 includes the Group's policies and processes for managing financial risk; details of its financial instruments and hedging activities; and its exposures to credit risk and liquidity risk.

The Group meets its day-to-day working capital requirements through local banking arrangements underpinned by the Group's £200 million unsecured multi-currency revolving credit facility maturing October 2019. The Group's forecasts and projections, taking account of reasonably possible changes in trading performance and exchange rates, show the Group operating comfortably within its debt financial covenants for the next 12 months.

The current economic climate continues to have an impact on the Group, its customers and its suppliers. The Board fully recognises the challenges that lie ahead but, after making enquiries, the Directors have a reasonable expectation that the Company and the Group have adequate resources to continue in operational existence for the foreseeable future. Accordingly, they continue to adopt the going concern basis in preparing the Annual Report and Accounts.

Non-GAAP measures

Where non-GAAP measures have been referenced these have been identified by an asterisk (*) where they appear in this Report.

Adoption of new and revised Standards

The Group did not adopt any new and revised Standards during the year ended 31 December 2017.

1. Accounting policies, estimates and judgments continued

New standards and interpretations

A number of new Standards, amendments to Standards and interpretations have been issued but are not yet effective, and have not been applied in preparing the Group's financial statements. Those which may be relevant to the Group are set out below. The Group has not applied these Standards early.

IFRS 15 Revenue from Contracts with Customers is effective for periods beginning on or after 1 January 2018 and introduces a new revenue recognition model that requires the transaction price receivable from customers to be allocated between the Group's performance obligations under contracts on a relative stand-alone selling price basis.

The Group has systematically reviewed its customer contracts and its data capture systems capability across the six global business units to assess the impact of the new Standard and ensure compliance.

Based on the Group's review, it is anticipated that there are no significant impacts to the Group as a result of the new Standard. Under IFRS 15 certain arrangements will be presented as reductions in revenue or certain reimbursements from customers currently presented in cost of sales will be presented as revenue. There will be some changes in timing of recognition, however these are not expected to materially impact the profits of the Group. The Group has chosen to apply the Retrospective method to the adoption of the new standard.

The impacts at the Group level based on our preliminary assessment are presented below:

	Revenue as reported 2017			Revenue restated for IFRS 15 impacts 2017 (preliminary assessment)		
Group impacts £m	Six months to 30 June	Six months to 31 December	Total 2017	Six months to 30 June	Six months to 31 December	Total 2017
Third party revenue	518.9	502.6	1,021.5	518.8	503.6	1,022.4
Operating profit	61.6	58.1	119.7	61.2	58.5	119.7

IFRS 16 Leases is effective for periods beginning on or after 1 January 2019 and introduces a single, on-balance sheet accounting model that is similar to current finance lease accounting. Under the new standard, a lessee is required to recognise all lease assets and liabilities (including those currently classified as operating leases) on the statement of financial position at the present value of the unavoidable lease payments and an amortisation charge on the leased assets and an interest charge on the leased liabilities.

Although the Group is still evaluating the potential impact of IFRS 16 on the financial statements and performance measures, including an assessment of whether any arrangements the Group enters into will be considered a lease under IFRS 16, it is expected IFRS 16 will increase the Group's recognised assets and liabilities and affect the presentation and timing of related depreciation and interest charges in the consolidated statement of income. Upon adoption of IFRS 16, the most significant impact is likely to be the present value of the operating lease commitments currently disclosed in note 23 being shown as a liability on the statement of financial position together with an asset representing the right of use.

IFRIC 14 Pension Accounting proposed amendments – IFRIC 14 governs the ability of companies to show a surplus relating to the pension scheme on their balance sheet. The amendment is intended to address the lack of clarity regarding remeasurement on a Plan amendment, curtailment or settlement and the availability of a refund from a Defined Benefit Plan. We anticipate limited impact to the Group.

IFRS 9 Financial Instruments is effective for periods beginning on or after 1 January 2018 and reduces the number of primary measurement categories for financial assets to two: amortised cost and fair value.

We anticipate limited impact to the Group.

IFRIC 22 Foreign currency transactions and advance considerations – the standard is effective for annual reporting periods on or after January 1 2018, and will clarify the accounting for transactions that include the receipt or payment of advance considerations in a foreign currency.

We anticipate limited impact to the Group.

Notes to the consolidated financial statements continued

1. Accounting policies, estimates and judgments continued

IFRIC 23 Uncertainty over Income Tax Treatments – the standard is effective for annual reporting periods on or after January 1 2019, and will clarify the accounting for uncertainties in income taxes. The interpretation is to be applied to the determination of taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates, when there is uncertainty over income tax treatments under IAS 12.

We anticipate limited impact to the Group.

IFRS 2 Share-based Payment in relation to the classification and measurement of share-based payment transactions. The amendments to the standard are intended to eliminate diversity in practice in three main areas: the effects of vesting conditions on the measurement of a cash-settled share-based payment transaction; the classification of a share-based payment transaction with net settlement features for withholding tax obligations; the accounting where a modification to the terms and conditions of a share-based payment transaction changes its classification from cash-settled to equity-settled.

We anticipate limited impact to the Group.

2. Acquisitions and disposals

2017

Electro–ceramics:

On 31 March 2017, the Group completed the sale of its UK Electro-ceramics business, comprising the two sites at Ruabon and Southampton.

The transaction was structured as a sale of the business, assets and goodwill for a consideration of £47 million on a cash-free, debt-free basis, paid in cash on completion and subject to customary working capital adjustments.

In the year ended 31 December 2016, UK Electro-ceramics generated an operating profit of £6.2 million on revenues of £22.7 million. Gross assets at 31 December 2016 were £6.7 million.

The Group also announced the closure of its US Electro-ceramics business, which formed the remainder of the Group's Electro-ceramics business, costs associated with the closure of the site have been provided for in the year, and are included in 'Transactions costs associated with disposal' in the table below.

The disposal and closure of the electro-ceramics business reduced the Group's assets and liabilities as follows:

	31 December 2017 £m
Trading net assets of disposal group	7.4
Goodwill of disposal group	5.8
Transaction costs associated with the disposal	6.9
Total consideration	46.9
Gain on disposal	26.8

The disposal group was included in the Technical Ceramics operating segment.

2. Acquisitions and disposals continued

Global Rotary Transfer Systems Business

On 31 March 2017, the Group completed the sale of its global Rotary Transfer Systems. The business is principally located at two manufacturing sites: Antweiler, Germany and Chalon, France.

The sale valued the business at €40.0 million on a cash-free, debt-free basis, with consideration paid in cash on completion, subject to customary closing working capital adjustments.

In the year to 31 December 2016, the Rotary business generated £3.2 million of operating profit on £15.5 million of sales. Gross assets at 31 December 2016 were £5.9 million.

The disposal and closure of the Rotary Transfer Systems business reduced the Group's assets and liabilities as follows:

	31 December 2017 £m
Trading net assets of disposal group	3.5
Goodwill of disposal group	7.1
Transaction costs associated with the disposal	3.1
Total consideration	32.6
Gain on disposal	18.9

The disposal group was included in the Electrical Carbon operating segment.

2016

During 2016 the Group disposed of its remaining 28.77% shareholding in Assam Carbon Products Limited for nil consideration. This shareholding was held at nil value and, as a result, there is no profit or loss on disposal. There were no other acquisitions or disposals during 2016.

Notes to the consolidated financial statements continued

3. Segment reporting

Accounting policies

The Group reports as two Divisions and six global business units, which have been identified as the Group's reportable operating segments, as detailed on page 2. These have been identified on the basis of internal management reporting information that is regularly reviewed by the Group's Board of Directors (the Chief Operating Decision Maker) in order to allocate resources and assess performance.

Segment results, assets and liabilities include items directly attributable to a segment as well as those that can be allocated on a reasonable basis. Unallocated items comprise mainly investments and related income, loans and borrowings and related expenses, corporate assets and head office expenses, and income tax assets and liabilities.

The information presented below represents the operating segments of the Group.

	Thermal Ceramics		Molten Metal Systems		Thermal Products Division		Electrical Carbon	
	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m
Revenue from external customers	426.2	413.3	46.9	43.5	473.1	456.8	157.1	156.2
Divisional EBITA*	56.9	55.0	7.0	6.7	63.9	61.7	16.7	19.7
Corporate costs								
Group EBITA*								
Restructuring costs and other items	–	0.1	–	–	–	0.1	–	(0.1)
Group headline operating profit*								
Amortisation of intangible assets	(1.8)	(1.5)	(0.2)	(0.1)	(2.0)	(1.6)	(0.5)	(0.4)
Operating profit before specific adjusting items								
Specific adjusting items included in operating profit[1]	–	–	–	–	–	–	–	–
Operating profit/(loss)	55.1	53.6	6.8	6.6	61.9	60.2	16.2	19.2
Finance income								
Finance expense								
Share of profit of associate (net of income tax)								
Profit before taxation								
Segment assets	392.1	417.8	40.0	42.2	432.1	460.0	147.1	154.9
Segment liabilities	86.7	88.5	7.0	7.5	93.7	96.0	31.3	30.0
Segment capital expenditure	10.5	17.7	1.8	2.1	12.3	19.8	6.9	8.3
Segment depreciation	12.3	10.8	1.9	1.7	14.2	12.5	4.7	4.9

1. Details of specific adjusting items are given in note 6.

In 2016 the Group recognised impairment losses totalling £8.5 million in the Composites and Defence Systems reportable operating segment, which has been recognised in the 'Impairment of intangible assets' line of the income statement. Additionally in 2016, all restructuring costs are included in results before specific adjusting items. See note 4 for further details.

Seals and Bearings		Technical Ceramics		Carbon and Technical Ceramics Division		Composites and Defence Systems		Segment totals		Corporate costs		Group	
2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m
113.2	97.7	257.1	248.1	527.4	502.0	21.0	30.4	1,021.5	989.2	–	–	1,021.5	989.2
17.5	14.2	28.3	26.6	62.5	60.5	(1.1)	1.1	125.3	123.3			125.3	123.3
										(5.6)	(5.4)	(5.6)	(5.4)
												119.7	117.9
–	0.1	–	–	–	–	–	0.1	–	0.2	–	(1.2)	–	(1.0)
												119.7	116.9
(0.3)	(0.3)	(4.5)	(4.2)	(5.3)	(4.9)	–	(1.4)	(7.3)	(7.9)	–	–	(7.3)	(7.9)
												112.4	109.0
–	–	–	–	–	–	–	(8.5)	–	(8.5)	45.7	6.8	45.7	(1.7)
17.2	14.0	23.8	22.4	57.2	55.6	(1.1)	(8.7)	118.0	107.1	40.1	0.2	158.1	107.3
												1.8	2.3
												(24.3)	(22.3)
												0.2	0.6
												135.8	87.9
86.6	86.1	178.0	188.1	411.7	429.1	9.8	15.8	853.6	904.9	76.1	134.4	929.7	1,039.3
19.7	18.2	43.2	37.0	94.2	85.2	5.1	7.9	193.0	189.1	502.4	685.5	695.4	874.6
3.5	4.4	11.0	6.5	21.4	19.2	0.7	0.5	34.4	39.5	–	–	34.4	39.5
4.5	4.3	6.6	7.3	15.8	16.5	0.6	0.5	30.6	29.5	–	–	30.6	29.5

Notes to the consolidated financial statements continued

3. Segment reporting continued

Segment revenue by geography

	Revenue from external customers		Non-current assets (excluding tax and financial instruments)	
	2017 £m	2016 £m	2017 £m	2016 £m
USA	369.6	342.5	198.0	215.0
China	92.8	82.9	64.5	66.1
Germany	69.9	74.5	42.0	50.5
UK (the Group's country of domicile)	57.7	67.6	117.1	120.6
France	29.1	31.2	17.0	14.9
Other Asia, Australasia, Middle East and Africa	193.0	186.2	49.3	50.8
Other Europe	141.7	140.8	23.5	21.3
Other North America	33.7	31.6	5.6	5.6
South America	34.0	31.9	9.5	10.0
	1,021.5	989.2	526.5	554.8

Revenue from external customers is based on geographic location of the end-customer. Segment assets are based on geographical location of the assets. No customer represents greater than 10% of revenue.

Segment revenue by end market

	2017 £m	2016 £m
Industrial	491.1	449.2
Transportation	222.9	214.3
Petrochemical	85.5	84.2
Energy	63.2	66.2
Security and defence	51.4	62.6
Electronics	57.2	57.2
Healthcare	50.2	55.5
	1,021.5	989.2

Intercompany sales to other segments

	Thermal Ceramics		Molten Metal Systems		Thermal Products Division		Electrical Carbon		Seals and Bearings		Technical Ceramics		Technical Ceramics Division		Composites and Defence Systems	
	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m	2017 £m	2016 £m
Intercompany sales to other segments	0.5	0.1	0.1	0.1	0.6	0.2	1.3	1.0	1.4	0.4	0.2	0.2	2.9	1.6	–	–

4. Operating costs before specific adjusting items

	Note	2017 £m	2016 £m
Change in stocks of finished goods and work in progress		5.3	3.0
Raw materials and consumables		232.7	236.0
Other external charges		163.7	160.9
Total		401.7	399.9
Employee costs:			
Wages and salaries		289.2	267.4
Equity-settled share-based payments	21	1.7	0.8
Social security costs		50.7	49.0
Pension costs	21	14.0	15.5
Total		355.6	332.7
Depreciation	10	30.6	29.5
Rentals under operating leases:			
Hire of plant and machinery		4.2	3.7
Other operating leases		7.7	7.5
Total		11.9	11.2
Other operating charges and income:			
Net foreign exchange (gains)/losses		5.4	(2.9)
Other operating income and charges		96.6	100.9
Total		102.0	98.0
Total operating costs before restructuring costs, other items and amortisation of intangible assets		901.8	871.3
Restructuring costs and other items:			
Employment termination costs		–	1.1
Other reorganisation, rationalisation and closure costs		–	0.4
Profit on disposal of properties		–	(0.5)
Total		–	1.0
Amortisation of intangible assets	11	7.3	7.9
Total operating costs before specific adjusting items		909.1	880.2

Notes to the consolidated financial statements continued

4. Operating costs before specific adjusting items continued

The following costs are included in total operating costs before specific adjusting items in the table on page 115:

1. Research and development

The Group recognised £34.3 million in expense in respect of research and development (2016: £29.2 million). These costs are included in employee costs and other operating charges in the above table, there are no individually material project costs.

2. Audit and non-audit fees

A summary of the audit and non-audit fees in respect of services provided by the auditor charged to operating profit in the year ended 31 December 2017 is set out below:

	2017 £m	2016 £m
Fees payable to the Company's auditor for the audit of the Company's annual accounts	0.5	0.4
Fees payable to the Company's auditor and its associates for other services:		
the auditing of accounts of any subsidiaries of the Company	1.6	1.7
audit-related services	0.1	0.1
taxation compliance services	0.1	0.1
other non-audit services	0.1	0.1
	2.4	2.4

5. Staff numbers

The average number of persons employed by the Group (including Directors) during the year, analysed by reporting segment, was as follows:

	Number of employees	
	2017[1]	2016[1]
Reportable operating segments		
Thermal Ceramics	2,850	2,800
Molten Metal Systems	510	500
Thermal Products Division	3,360	3,300
Electrical Carbon	1,540	1,600
Seals and Bearings	1,110	1,100
Technical Ceramics	2,500	2,600
Carbon and Technical Ceramics Division	5,150	5,300
Composites and Defence Systems	160	200
Segment totals	8,670	8,800
Corporate (UK and North America)	50	50
Group	8,720	8,850

1. Average employee numbers have been rounded to the nearest 10.

6. Specific adjusting items

Accounting policies

In the consolidated income statement the Group presents specific adjusting items separately. In the judgment of the Directors, due to the nature and value of these items they should be disclosed separately from the underlying results of the Group to allow the reader to obtain a proper understanding of the financial information and the best indication of underlying performance of the Group.

	2017 £m	2016 £m
Specific adjusting items:		
Net pension settlement credit	–	6.8
Impairment of intangible assets	–	(8.5)
Net profit on disposal of businesses	45.7	–
Total specific adjusting items before income tax	45.7	(1.7)
Income tax (charge)/credit from specific adjusting items	0.9	(2.8)
Income tax (charge)/credit resulting from US tax reform rate change and mandatory repatriation charge	4.1	–
Total specific adjusting items after income tax	50.7	(4.5)

2017

Net profit on disposal of business

On 31 March 2017, the Group completed the sale of its UK Electro-ceramics business, comprising the two sites at Ruabon and Southampton. The Group also announced the closure of its US Electro-ceramics business, which formed the remainder of the Group's Electro-ceramics business.

The Group reflected a profit on disposal of £26.8 million associated with this transaction. A deferred tax asset of £1.5 million was recognised in connection with the closure of the US business.

On 31 March 2017, the Group completed the sale of its global Rotary Transfer Systems. The business is principally located at two manufacturing sites; Antweiler, Germany and Chalon, France.

The Group reflected a profit on disposal of £18.9 million associated with this transaction. An income tax charge of £0.6 million was recognized in respect of this disposal.

US Tax Cuts and Jobs Act

As a consequence of the enactment of H.R.1 commonly referred to as the Tax Cuts and Jobs Act in the US a credit of £4.1 million was recognised. This comprised of the revaluation of tax balances to reflect the reduction in the federal tax rates offset by an income tax charge for mandatory repatriation charge for overseas subsidiaries of US companies.

2016

Net pension settlement credit

The Group has completed the final termination and payment of all earned benefits for one of its North American defined benefit plans.

The Group has also completed a one-time lump-sum cash out payment to certain former, deferred and vested employees of the Morgan US Employees' Retirement Plan in settlement of the benefits promised by the Group.

As a result of these changes the Group has recognised a net pension settlement credit of £6.8 million, after deduction of transaction costs. An income tax charge of £2.8 million was recognised in respect of the net pension settlement credit.

Impairment of intangible assets

As a result of the continued reduction in demand in the defence market, a review of the carrying value of the remaining intangible assets of Composites and Defence Systems resulted in an impairment charge of £8.5 million, relating to a full impairment of the Composites and Defence Systems technology intangible asset. This impairment was calculated by looking at the fair value of the assets less cost of disposal. Refer to note 11 for more details of the impairment charge.

Notes to the consolidated financial statements continued

7. Net finance income and expense

Accounting policies

Net financing costs comprise interest payable on borrowings calculated using the effective interest rate method, interest receivable on funds invested, gains and losses on hedging instruments that are recognised in the income statement, net interest on IAS 19 pension assets and interest on IAS 19 obligations. Interest income is recognised in the income statement as it accrues, using the effective interest method.

Borrowing costs (interest and other costs) are capitalised when they are incurred on raising specific funds to finance a major capital project which will be a significant productive asset, or to the extent that funds borrowed generally are used for the purposes of obtaining a qualifying asset.

	2017 £m	2016 £m
Recognised in profit or loss		
Amounts derived from financial instruments	0.2	0.3
Interest income on bank deposits measured at amortised cost	1.6	2.0
Finance income	1.8	2.3
Interest expense on financial liabilities measured at amortised cost	(17.4)	(15.2)
Net interest on IAS 19 obligations	(6.9)	(7.1)
Finance expense	(24.3)	(22.3)
Net financing costs recognised in profit or loss	(22.5)	(20.0)
Recognised directly in equity		
Cash flow hedges:		
Effective portion of changes in fair value of cash flow hedges	2.6	(3.7)
Transferred to profit or loss	0.4	0.8
Effective portion of change in fair value of net investment hedge	–	(17.7)
Foreign currency translation differences for foreign operations	(11.0)	37.4
	(8.0)	16.8

8. Taxation – income tax expense

Accounting policies

Income tax on the profit or loss for the year comprises current and deferred tax. Income tax is recognised in the income statement except to the extent that it relates to items recognised directly in other comprehensive income, in which case it is recognised in other comprehensive income.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.

Deferred tax is provided using the balance sheet liability method, providing for temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. The following temporary differences are not provided for: the initial recognition of goodwill, the initial recognition of assets or liabilities that affect neither accounting nor taxable profit, and differences relating to investments in subsidiaries to the extent that they will probably not reverse in the foreseeable future. The amount of deferred tax provided is based on the expected manner of realisation or settlement of the carrying amount of assets and liabilities, using tax rates enacted or substantively enacted at the balance sheet date.

A deferred tax asset is recognised only to the extent that it is probable that future taxable profits will be available against which the asset can be utilised. Deferred tax assets are reduced to the extent that it is no longer probable that the related tax benefit will be realised.

8. Taxation – income tax expense continued

Taxation – income tax expense
Recognised in the income statement

	2017 £m	2016 £m
Current tax		
Current year	23.5	27.8
Adjustments for prior years	0.1	(3.3)
	23.6	24.5
Deferred tax		
Current year	(1.7)	1.6
Adjustments for prior years	–	3.3
	(1.7)	4.9
Total income tax expense in income statement	21.9	29.4

Reconciliation of effective tax rate

	2017 £m	2017 %	2016 £m	2016 %
Profit before tax	135.8		87.9	
Income tax using the domestic corporation tax rate	26.1	19.2	17.6	20.0
Effect of different tax rates in other jurisdictions	8.2	6.0	8.8	10.0
Local taxes including withholding tax suffered	4.5	3.3	3.3	3.7
Impact of US Tax Cuts and Jobs Act	(4.1)	(3.0)	–	–
Permanent differences	0.8	0.6	1.5	1.7
Non taxable disposals	(2.9)	(2.1)	–	–
Utilisation of unrecognised UK capital losses on disposal of UK Electro-ceramics business	(6.2)	(4.6)	–	–
Movements related to unrecognised temporary differences	(3.9)	(2.9)	(1.5)	(1.7)
Adjustments in respect of prior years	0.1	0.1	–	–
Other	(0.7)	(0.5)	(0.3)	(0.3)
	21.9	16.1	29.4	33.4

Income tax recognised directly in equity

	2017	2016
Tax effect on components of other comprehensive income:		
Deferred tax associated with defined benefit schemes and share schemes	1.8	(0.6)
Total tax recognised directly in equity	1.8	(0.6)

The effective rate of tax before specific adjusting items is 29.9% (2016: 29.7%).

The prior year adjustments in 2016 principally relate to the true-up of tax provisions to tax returns and includes the release of a tax provision.

The Group operates in many jurisdictions around the world and is subject to factors that may impact future tax charges including the recently enacted US tax reform, implementation of the OECD's BEPS actions, tax rate and legislation changes, expiry of the statute of limitations and resolution of tax audits and disputes.

The Group has completed its review of the new US tax reform legislation, as enacted, including the reduction of the US federal tax rate from 35% to 21%, which came into effect on 1 January 2018, and which gave rise to a deferred tax credit of £5.3 million. Offsetting this benefit, is a one-off charge in respect of the mandatory repatriation provisions of £1.2 million. It should be noted that parts of the new legislation are subject to questions of interpretation and, therefore, further regulations may be issued in future periods which may impact future tax rates.

Notes to the consolidated financial statements continued

9. Earnings per share

The calculation of basic/diluted earnings per share from continuing operations at 31 December 2017 was based on the net profit attributable to equity shareholders of £107.6 million (2016: £52.3 million, 2015: £33.9 million), and a weighted average number of shares outstanding during the year of 285.0 million (2016: 284.9 million, 2015: 285.1 million). The calculation of the weighted average number of shares excludes the shares held by The Morgan General Employee Benefit Trust, on which the dividends are waived.

Headline earnings per ordinary share* is defined as operating profit adjusted to exclude specific adjusting items and amortisation of intangible assets, plus share of profit of associate less net financing costs, income tax expense and non-controlling interests, divided by the weighted average number of ordinary shares during the period. This measure of earnings is shown because the Directors consider that it gives a better indication of headline performance.

The diluted earnings per share calculation takes into account the dilutive effect of share incentives. The diluted, weighted average number of shares is 286.7 million (2016: 285.1 million, 2015: 285.5 million). Diluted earnings per share is 37.5 pence (2016: 18.3 pence, 2015: 11.9 pence).

	2017 £m	2016 £m	2015 £m
Profit for the period attributable to equity shareholders	**107.6**	52.3	33.9
Specific adjusting items	**(45.7)**	1.7	22.1
Amortisation of intangible assets	**7.3**	7.9	7.1
Tax effect of the above	**(5.0)**	2.8	(3.3)
Non-controlling interests' share of the above adjustments	**–**	–	(0.4)
Adjusted profit for the period	**64.2**	64.7	59.4

	2017 Pence	2016 Pence	2015 Pence
Earnings per ordinary share	**37.8p**	18.4p	11.9p
Specific adjusting items	**(16.0)p**	0.6p	7.7p
Amortisation of intangible assets	**2.5p**	2.7p	2.5p
Tax effect of the above	**(1.8)p**	1.0p	(1.2)p
Non-controlling interests' share of the above adjustments	**–**	–	(0.1)p
Headline earnings per share*	**22.5p**	22.7p	20.8p

10. Property, plant and equipment

Accounting policies

(i) Owned assets

Items of property, plant and equipment are stated at cost, or at deemed cost, less accumulated depreciation (see below) and impairment losses. The cost of self-constructed assets includes the cost of materials, direct labour, and an appropriate proportion of production overheads.

Where parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items of property, plant and equipment.

Gains and losses on the disposal of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of the asset. Gains and losses on the disposal of property are recognised in 'Restructuring costs and other items' in the income statement. Gains and losses on the disposal of plant and equipment are recognised in 'Operating costs before restructuring costs, other items and amortisation of intangible assets' in the income statement.

(ii) Leased assets

Leases under the terms of which the Group assumes substantially all the risks and rewards of ownership are classified as finance leases. Leased assets acquired by way of a finance lease are stated at an amount equal to the lower of their fair value and the present value of the minimum lease payments at inception of the lease, less accumulated depreciation and impairment losses.

(iii) Depreciation

Depreciation is charged to the income statement on a straight-line basis over the estimated useful lives of each part of an item of property, plant and equipment. Land is not depreciated. Depreciation methods, useful lives and residual values are reviewed at each balance sheet date. The estimated useful lives are as follows:

Buildings	50 years
Plant and equipment and fixtures	3-20 years

10. Property, plant and equipment continued

	Land and buildings £m	Plant and equipment and fixtures £m	Total £m
Cost			
Balance at 1 January 2016	169.3	575.9	745.2
Additions	5.9	33.0	38.9
Disposals	(1.2)	(12.1)	(13.3)
Transfers between categories	2.9	(2.9)	–
Effect of movement in foreign exchange	25.7	91.2	116.9
Balance at 31 December 2016	202.6	685.1	887.7
Balance at 1 January 2017	**202.6**	**685.1**	**887.7**
Additions	**4.2**	**36.4**	**40.6**
Disposals	**(3.3)**	**(35.5)**	**(38.8)**
Transfers between categories	**6.3**	**(6.3)**	**–**
Effect of movement in foreign exchange	**(6.9)**	**(29.2)**	**(36.1)**
Balance at 31 December 2017	**202.9**	**650.5**	**853.4**
Depreciation and impairment losses			
Balance at 1 January 2016	71.5	417.0	488.5
Depreciation charge for the year	5.0	24.5	29.5
Impairment loss	(0.8)	(11.3)	(12.1)
Disposals	0.5	(0.5)	–
Effect of movement in foreign exchange	11.7	66.4	78.1
Balance at 31 December 2016	87.9	496.1	584.0
Balance at 1 January 2017	**87.9**	**496.1**	**584.0**
Depreciation charge for the year	**4.4**	**26.2**	**30.6**
Disposals	**(1.4)**	**(32.5)**	**(33.9)**
Effect of movement in foreign exchange	**(3.9)**	**(21.2)**	**(25.1)**
Balance at 31 December 2017	**87.0**	**468.6**	**555.6**
Carrying amounts			
At 1 January 2016	97.8	158.9	256.7
At 31 December 2016	114.7	189.0	303.7
At 31 December 2017	**115.9**	**181.9**	**297.8**

Assets pledged as security for liabilities

In 2017 there were no assets pledged for security (2016: £nil).

Notes to the consolidated financial statements continued

11. Intangible assets

Accounting policies

(i) Goodwill

All business combinations are accounted for by applying the purchase method. Goodwill represents the difference between the cost of the acquisition and the fair value of assets, liabilities and contingent liabilities acquired.

Goodwill is allocated to cash-generating units and is tested annually for impairment.

(ii) Research and development

See note 1.

(iii) Other intangible assets

Other intangible assets that are acquired by the Group are stated at cost less accumulated amortisation (see below) and impairment losses.

(iv) Amortisation

Amortisation is charged to the income statement on a straight-line basis over the estimated useful lives of intangible assets unless such lives are indefinite. Goodwill and intangible assets with an indefinite useful life are systematically tested for impairment at each balance sheet date. Other intangible assets are amortised from the date they are available for use. The estimated useful lives are as follows:

Capitalised development costs	3 years
Computer software	3-10 years
Customer relationships	15-20 years
Technology and trademarks	15-20 years
Order book	Amortised over the period in which the associated orders are fulfilled

Intangible assets

	Goodwill £m	Order book £m	Customer relationships £m	Technology and trademarks £m	Capitalised development costs £m	Computer software £m	Total £m
Cost							
Balance at 1 January 2016	193.6	0.2	78.7	21.3	0.6	20.0	314.4
Additions (externally purchased)	–	–	–	–	–	3.0	3.0
Disposals	–	(0.2)	–	–	–	(0.1)	(0.3)
Effect of movement in foreign exchange	17.0	–	10.6	0.5	0.2	2.7	31.0
Balance at 31 December 2016	210.6	–	89.3	21.8	0.8	25.6	348.1
Balance at 1 January 2017	**210.6**	**–**	**89.3**	**21.8**	**0.8**	**25.6**	**348.1**
Additions (externally purchased)	**–**	**–**	**–**	**–**	**–**	**5.3**	**5.3**
Disposals	**(12.9)**	**–**	**–**	**–**	**–**	**(1.8)**	**(14.7)**
Effect of movement in foreign exchange	**(5.7)**	**–**	**(4.2)**	**0.2**	**–**	**(1.0)**	**(10.7)**
Balance at 31 December 2017	**192.0**	**–**	**85.1**	**22.0**	**0.8**	**28.1**	**328.0**
Amortisation and impairment losses							
Balance at 1 January 2016	16.4	0.2	48.2	8.4	0.6	10.8	84.6
Amortisation charge for the year	–	–	4.3	1.4	–	2.2	7.9
Impairment losses for the year	–	–	–	8.5	–	–	8.5
Disposals	–	(0.2)	–	–	–	(0.1)	(0.3)
Effects of movement in foreign exchange	–	–	5.1	0.1	0.2	1.6	7.0
Balance at 31 December 2016	16.4	–	57.6	18.4	0.8	14.5	107.7

11. Intangible assets continued

	Goodwill £m	Order book £m	Customer relationships £m	Technology and trademarks £m	Capitalised development costs £m	Computer software £m	Total £m
Balance at 1 January 2017	16.4	–	57.6	18.4	0.8	14.5	107.7
Amortisation charge for the year	–	–	4.3	0.2	–	2.8	7.3
Impairment losses for the year	–	–	–	–	–		–
Disposals	–	–	–	–	–	(1.6)	(1.6)
Effects of movement in foreign exchange	–	–	(2.0)	–	–	(0.4)	(2.4)
Balance at 31 December 2017	**16.4**	**–**	**59.9**	**18.6**	**0.8**	**15.3**	**111.0**
Carrying amounts							
At 1 January 2016	177.2	–	30.5	12.9	–	9.2	229.8
At 31 December 2016	194.2	–	31.7	3.4	–	11.1	240.4
At 31 December 2017	**175.6**	**–**	**25.2**	**3.4**	**–**	**12.8**	**217.0**

Included in customer relationships is an asset with a net book value of £18.4 million at 31 December 2017 recognised in relation to the acquisition of the Technical Ceramics businesses of Carpenter Technology Corporation in 2008. The remaining amortisation period on this asset is six years.

Impairment test for cash-generating units containing goodwill

In accordance with the requirements of IAS 36 Impairment of Assets, goodwill is allocated to the Group's cash-generating units that are expected to benefit from the synergies of the business combination that gave rise to the goodwill.

Goodwill is attributed to each cash-generating unit as follows:

	2017 £m	2016 £m
Thermal Ceramics	85.4	94.8
Molten Metal Systems	9.1	10.1
Electrical Carbon	29.6	32.9
Seals and Bearings	15.0	16.5
Technical Ceramics	36.5	39.9
Composites and Defence Systems	–	–
	175.6	194.2

Each cash-generating unit is assessed for impairment annually and whenever there is an indication of impairment.

As part of the annual impairment test review the carrying value of goodwill has been assessed with reference to its value in use, reflecting the projected discounted cash flows of each cash-generating unit to which goodwill has been allocated.

The key assumptions used in determining value in use relate to growth rates and discount rates.

The cash flow projections in year one are based on budgeted operating cash flow projections in year one. The key assumptions that underpin these cash flow projections relate to sales and operating margins, which are based on past experience, taking into account the effect of known or likely changes in market or operating conditions.

Growth rates for the period not covered by budgets are 2019: 2.2% and 2020: 2.2%. A 2.2% growth rate has been used to calculate a terminal value. These growth rates reflect the products, industries and countries in which the operating segments operate. These medium- to long-term growth rates have been reviewed by management during 2017 and are considered to be appropriate.

In 2017, the Group has used the following pre-tax discount rates for calculating the terminal value of each of the cash-generating units: Thermal Ceramics: 12.4%, Molten Metal Systems: 12.3%, Electrical Carbon: 12.5%, Seals and Bearings: 12.5%, Technical Ceramics 12.9%.

Notes to the consolidated financial statements continued

11. Intangible assets continued

The Directors have considered the following individual sensitivities and are confident that no impairment would arise for each of the Thermal Ceramics, Molten Metal Systems, Electrical Carbon, Seals and Bearings and Technical Ceramics cash-generating units in any one of the following three circumstances:

- if the pre-tax discount rate was increased to 15%; or
- if no growth was assumed for years two to five and in the calculation of terminal value; or
- if the cash flow projections of all businesses were reduced by 25%.

During 2016 the Group recognised an impairment loss of £8.5 million on technology and trademark intangible assets in relation to the Composites and Defence Systems cash-generating unit, as a result of the continued reduction in demand in the defence market.

12. Investments

Accounting policies

Investments in debt and equity securities

Investments in debt and equity securities held by the Group are classified as being available-for-sale and are stated at fair value, with any resultant gain or loss being recognised directly in other comprehensive income (in the fair value reserve), except for impairment losses and, in the case of monetary items such as debt securities, foreign exchange gains and losses. When these investments are derecognised, the cumulative gain or loss previously recognised directly in equity is recognised in profit or loss. Where these investments are interest-bearing, interest calculated using the effective interest method is recognised in profit or loss.

	2017 £m	2016 £m
Non-current investments		
Equity securities available-for-sale	**0.9**	0.5
Investment in associates	**5.4**	5.5
	6.3	6.0

Equity securities available-for-sale

The equity securities available-for-sale represent an investment in a mutual fund. A 10% increase in the unit price would increase the fair value of the investments by £nil (2016: £nil).

Investment in associates

Details of the Group's material associate at the end of the reporting period are as follows:

Name of associate	Principal activity	Place of incorporation and principal place of business	Proportion of ownership interest/ voting rights held by the Group 2017	2016
Jemmtec Limited	Manufacture of fired refractory shapes	United Kingdom	**35%**	35%

The above associate has been accounted for using the equity method in these consolidated financial statements.

The Group did not receive dividends from any of its associates during 2017 and 2016.

During 2016 Jemmtec Limited repaid the £2.2 million loan that had been made to it by the Group.

12. Investments continued

Summarised financial information in respect of the Group's material associate is set out below. The summarised financial information below has been prepared in accordance with IFRSs (adjusted by the Group for equity accounting purposes).

	Jemmtec Limited 2017 £m	Jemmtec Limited 2016 £m
Current assets	6.7	7.6
Non-current assets	10.5	9.6
Current liabilities	3.6	3.9
Non-current liabilities	0.4	0.5
Revenue	13.0	13.0
Profit from continuing operations	1.6	1.9

Reconciliation of the above summarised financial information to the carrying amount of the interest recognised in the Group's consolidated financial statements:

	Jemmtec Limited 2017 £m	Jemmtec Limited 2016 £m
Net assets of associate	13.2	12.7
Proportion of the Group's ownership interest in the associate	4.6	4.4
Goodwill	0.2	0.2
Carrying amount of the Group's interest in the associate	4.8	4.6

13. Recognised deferred tax assets and liabilities

Deferred tax assets and liabilities are attributable to the following:

	Assets 2017 £m	Assets 2016 £m	Liabilities 2017 £m	Liabilities 2016 £m	Net 2017 £m	Net 2016 £m
Property, plant and equipment	–	–	(17.5)	(25.2)	(17.5)	(25.2)
Intangible assets	–	–	(6.0)	(13.2)	(6.0)	(13.2)
Employee benefits	12.1	25.3	–	–	12.1	25.3
Provisions	6.5	7.2	–	–	6.5	7.2
Tax value of loss carried forward recognised	2.9	2.1	–	–	2.9	2.1
Other items	0.6	1.6	–	–	0.6	1.6
Offset	(13.0)	(30.1)	13.0	30.1	–	–
	9.1	6.1	(10.5)	(8.3)	(1.4)	(2.2)

Unrecognised deferred tax assets

Deferred tax assets have not been recognised in respect of the following items:

	2017 £m	2016 £m
UK pension deficit	166.0	180.5
Tax losses	83.9	94.2
Capital losses	47.0	79.0
Other deductible temporary differences	51.6	46.5
	348.5	400.2

Deferred tax assets have not been recognised in relation to these temporary differences due to uncertainty surrounding future utilisation. Based on current tax legislation the tax losses will not expire.

Notes to the consolidated financial statements continued

13. Recognised deferred tax assets and liabilities continued

Movements in temporary differences during the year

	Balance 31 December 2015 £m	Recognised in income £m	Recognised directly in equity £m	Balance 31 December 2016 £m	Recognised in income £m	Recognised directly in equity £m	Balance 31 December 2017 £m
Property, plant and equipment	(18.0)	(7.2)	–	(25.2)	7.7	–	(17.5)
Intangible assets	(13.9)	0.7	–	(13.2)	7.2	–	(6.0)
Employee benefits	26.6	(1.9)	0.6	25.3	(11.4)	(1.8)	12.1
Provisions	5.5	1.7	–	7.2	(0.7)	–	6.5
Tax value of loss carried forward recognised	0.9	1.2	–	2.1	0.8	–	2.9
Others	1.0	0.6	–	1.6	(1.9)	0.9	0.6
	2.1	(4.9)	0.6	(2.2)	1.7	(0.9)	(1.4)

Deferred income tax of £1.9 million is provided on the potential unremitted earnings of overseas subsidiary undertakings.

14. Inventories

Accounting policies

Inventories are stated at the lower of cost and net realisable value. Net realisable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The cost of inventories is based on the first-in-first-out principle and includes expenditure incurred in acquiring the inventories and bringing them to their existing location and condition. In the case of manufactured inventories and work in progress, cost includes an appropriate share of overheads based on normal operating capacity.

Inventories

	2017 £m	2016 £m
Raw materials and consumables	39.3	39.7
Work in progress	44.4	46.2
Finished goods	58.1	62.3
	141.8	148.2

The Group holds consignment inventory amounting to £16.5 million (2016: £15.2 million) which is not reflected in the balance sheet. The majority of this balance is for precious metals, which are held on consignment by a subsidiary and for which it is invoiced only when the material is required.

In 2017 provisions of £3.4 million were made against inventories and recognised in operating costs (2016: £3.4 million).

15. Trade and other receivables

Accounting policies

Trade and other receivables are initially stated at their fair value and subsequently measured at amortised cost less impairment losses.

Trade and other receivables

	2017 £m	2016 £m
Current		
Other trade receivables	174.7	184.5
Trade receivables	174.7	184.5
Other non-trade receivables and prepayments	19.5	21.2
	194.2	205.7

The Group's exposure to credit and currency risks related to trade and other receivables is disclosed in note 20.

16. Cash and cash equivalents

Accounting policies

Cash and cash equivalents comprise cash balances and call deposits. Short-term deposits include demand deposits and short–term highly liquid investments with maturities of three months or less that are readily convertible to known amounts of cash and are subject to an insignificant risk of changes in value. Bank overdrafts that are repayable on demand and form an integral part of the Group's cash management are included as a component of cash and cash equivalents for the purpose of the Group statement of cash flows.

Cash and cash equivalents

	2017 £m	2016 £m
Bank balances	44.7	61.4
Cash deposits	5.7	61.0
Cash and cash equivalents	50.4	122.4

Reconciliation of cash and cash equivalents to net debt*

	2017 £m	2016 £m
Opening borrowings	(364.9)	(265.8)
Net (increase)/decrease in borrowings	114.1	(63.4)
Payment of finance lease liabilities	0.3	0.3
Total changes from Cash Flows	114.4	(63.1)
Effect of movements in foreign exchange on borrowings	18.8	(36.0)
Closing borrowings	(231.7)	(364.9)
Cash and cash equivalents	50.4	122.4
Closing net debt*	(181.3)	(242.5)

17. Trade and other payables

Accounting policies

Trade and other payables are initially stated at their fair value and subsequently measured at amortised cost.

Trade and other payables

	2017 £m	2016 £m
Non-current		
Trade and non-trade payables	3.4	1.8
Current		
Trade payables due to associate	0.3	0.2
Other trade payables	97.6	100.3
Non-trade payables and accrued expenses	95.8	92.0
	193.7	192.5

Notes to the consolidated financial statements continued

18. Capital and reserves

Accounting policies

(i) Ordinary share capital

Ordinary shares are classified as equity.

(ii) Preference share capital

Preference share capital is classified as equity if it is non-redeemable and any dividends are discretionary, or is redeemable but only at the Company's option. Dividends on Preference share capital classified as equity are recognised as distributions within equity.

(iii) Repurchase of share capital and own shares held by The Morgan General Employee Benefit Trust ('the Trust')

When share capital recognised as equity is repurchased, the amount of the consideration paid, which includes directly attributable costs, is net of any tax effects, and is recognised as a deduction from equity. Repurchased shares and the purchase of own shares by the Trust are presented as a deduction from total equity.

Translation reserve

The translation reserve comprises all foreign exchange differences arising from the translation of the financial statements of foreign operations, as well as from the translation of liabilities that hedge the Company's net investment in a foreign subsidiary and forward contracts used for net investment hedging.

Hedging reserve

The hedging reserve comprises the effective portion of the cumulative net change in the fair value of cash flow hedging instruments related to hedged transactions that have not yet occurred.

Fair value reserve

The fair value reserve includes the cumulative net change in the fair value of available-for-sale investments until the investment is derecognised.

Capital redemption reserve

The capital redemption reserve arose when the Company redeemed Preference shares wholly out of distributable profits.

Other reserves

The other reserves include the £10.8 million increase in the year ended 3 January 2010 in the fair value of the Group's original 49% interest in Clearpower Limited from the date of its original acquisition to 5 January 2009 excluding goodwill and to the extent not previously recognised as the Group's share of the results of Clearpower Limited.

Retained earnings

The Company has acquired own shares to satisfy the requirements of the various share option incentive schemes. At 31 December 2017 216,456 shares were held by The Morgan General Employee Benefit Trust and are treated as a deduction from equity (2016: 623,127). Nil treasury shares were held by the Company (2016: nil). All rights conferred by those shares are suspended until they are reissued.

Dividends

The following Ordinary dividends were declared and paid by the Company:

	Per share		Total	
	2017 Pence	2016 Pence	**2017 £m**	2016 £m
2015 final	**–**	7.00	**–**	20.0
2016 interim	**–**	4.00	**–**	11.4
2016 final	**7.00**	–	**20.0**	–
2017 interim	**4.00**	–	**11.4**	–
Total	**11.00**	11.00	**31.4**	31.4

In addition to the above, the Company also declared and paid dividends on the 5.5% Cumulative First Preference shares and 5.0% Cumulative Second Preference shares.

18. Capital and reserves continued

After 31 December 2017 the following dividends were proposed by the Directors for 2017. These dividends have not been provided for and there are no income tax consequences.

	£m
7.0 pence per qualifying Ordinary share	20.0
5.5% Cumulative First Preference shares	–
5.0% Cumulative Second Preference shares	–
	20.0

The proposed 2017 final dividend is based upon the number of shares outstanding at the balance sheet date.

Called-up share capital

	2017 £m	2016 £m
Equity share capital		
Fully paid: 285,369,988 (2016: 285,369,988) issued Ordinary shares of 25 pence each	71.4	71.4
	71.4	71.4
Preference share capital		
125,327 issued 5.5% Cumulative First Preference shares of £1 each, fully paid	0.1	0.1
311,954 issued 5.0% Cumulative Second Preference shares of £1 each, fully paid	0.3	0.3
Total Preference share capital	0.4	0.4
Total share capital	71.8	71.8

Number of shares in issue

	Ordinary shares		Preference shares	
	2017	2016	2017	2016
In issue at beginning and end of period	285,369,988	285,369,988	437,281	437,281

As at the date of this Report 285,369,988 Ordinary shares have been issued (2016: 285,369,988).

The holders of Ordinary shares are entitled to receive dividends as declared from time to time and are entitled to one vote per share at meetings of the Company.

Details of options outstanding in respect of Ordinary shares are given in note 21.

The 5.5% Cumulative First Preference shares of £1 each and the 5.0% Cumulative Second Preference shares of £1 each confer on the holders thereof the right to receive a cumulative preferential dividend at the rate of 5.5% and 5.0% respectively, calculated up to 30 June and 31 December respectively in every year. The First and Second Cumulative Preference shares shall not entitle the holders thereof to attend or vote at any general meeting unless either:

(i) the meeting is convened to consider any resolutions for reducing the capital, or authorising any issue of debentures or debenture stock, or increasing the borrowing powers of the Board under the Articles of Association of the Company, or winding up, or sanctioning a sale of the undertaking, or altering the Articles in any manner affecting their respective interests, or any other resolutions directly altering their respective rights and privileges; or

(ii) at the date of the notice convening the general meeting the Preference dividend is upwards of one month in arrears from the payment date of any half-yearly instalment.

On a return of capital on a winding-up the assets of the Company available for distribution shall be applied:

First, in payment to the holders of the First Preference shares of the amounts paid up on such shares, together with interest at the rate of 5.5% pa.

Second, in payment to the holders of the Second Preference shares of the amounts paid up on such shares, together with interest at the rate of 5.0% pa.

Third, in repaying the capital paid up or credited as paid up on the Ordinary shares.

Fourth, any surplus shall be distributed rateably amongst the holders of the Ordinary shares in proportion to the nominal amount paid up on their respective holdings of shares in the Company.

Notes to the consolidated financial statements continued

19. Interest-bearing loans and borrowings

This note provides information about the contractual terms of the Group's interest-bearing loans and borrowings which are measured at amortised cost. For more information about the Group's exposure to interest rate and foreign currency risk, see note 20.

Accounting policies

Interest-bearing loans and borrowings

Interest-bearing loans and borrowings are recognised initially at fair value less attributable transaction costs. Subsequent to initial recognition, interest-bearing loans and borrowings are stated at amortised cost with any difference between cost and redemption value being recognised in the income statement over the period of the borrowings on an effective interest basis.

Finance lease payments

Leases where the Group assumes substantially all of the risks and rewards of ownership are classified as finance leases as if the asset had been purchased outright. Assets acquired under finance leases are recognised as assets of the Group and the capital elements of the leasing commitments are shown as obligations in creditors. Depreciation is charged on a basis consistent with similar owned assets or over the lease term if shorter. Minimum lease payments are apportioned between the finance charge and the reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability.

Borrowing facilities and liquidity

All of the Group's borrowing facilities are arranged by Group Treasury with Morgan Advanced Materials plc as the principal obligor. In a few cases operating subsidiaries have external borrowings but these are supervised and controlled centrally. Group Treasury seeks to obtain certainty of access to funding in the amounts, diversity of maturities and diversity of counterparties as required to support the Group's medium-term financing requirements and to minimise the impact of poor credit market conditions.

Interest-bearing loans, borrowings and overdrafts

	2017 £m	2016 £m
Non-current liabilities		
Senior Notes	192.3	203.3
Bank and other loans	0.3	0.2
Obligations under finance leases	0.1	0.5
	192.7	204.0
Current liabilities		
Senior Notes	–	159.3
Bank and other loans	38.5	1.2
Obligations under finance leases	0.5	0.4
	39.0	160.9

Finance lease liabilities

Finance lease liabilities are payable as follows:

	Minimum lease payments 2017 £m	Interest 2017 £m	Principal 2017 £m	Minimum lease payments 2016 £m	Interest 2016 £m	Principal 2016 £m
Less than one year	0.5	–	0.5	0.4	–	0.4
Between one and five years	0.1	–	0.1	0.5	0.1	0.4
	0.6	–	0.6	0.9	0.1	0.8

In 2017 bank and other loans did not include any loans secured on the assets of the Group (2016: £nil).

As at 31 December 2017 the Group had available headroom under the bank syndication of £168.4 million (2016: £200.0 million).

20. Financial risk management

This note presents information about the Group's exposure to a variety of financial risks: credit risk, liquidity risk and market risk, and the Group's management of capital. Further quantitative disclosures are included throughout these consolidated financial statements.

Accounting policies

Classification of financial instruments issued by the Group

Financial instruments issued by the Group are treated as equity (i.e. forming part of shareholders' funds) only to the extent that they meet the following two conditions:

(i) they include no contractual obligations upon the Group to deliver cash or other financial assets or to exchange financial assets or financial liabilities with another party under conditions that are potentially unfavourable to the Group; and

(ii) where the instrument will or may be settled in the Company's own equity instruments, it is either a non-derivative that includes no obligation to deliver a variable number of the Company's own equity instruments or is a derivative that will be settled by the Company exchanging a fixed amount of cash or other financial assets for a fixed number of its own equity instruments.

To the extent that this definition is not met the proceeds of issue are classified as a financial liability. Where the instrument so classified takes the legal form of the Company's own shares, the amounts presented in these financial statements for called-up share capital and share premium account exclude amounts in relation to those shares.

Finance payments associated with financial liabilities are dealt with as part of finance expenses. Finance payments associated with financial instruments that are classified in equity are dividends and are recorded directly in equity.

Financial risk management and Treasury Policy

Group Treasury works within a framework of policies and procedures approved by the Audit Committee. It acts as a service to Morgan Advanced Materials' businesses, not as a profit centre, and manages and controls risk in the treasury environment through the establishment of such procedures. Group Treasury seeks to align treasury goals, objectives and philosophy to those of the Group. It is responsible for all of the Group's funding, liquidity, cash management, interest rate risk, foreign exchange risk and other treasury business. As part of the policies and procedures, there is strict control over the use of financial instruments to hedge foreign currencies and interest rates. Speculative trading in derivatives and other financial instruments is not permitted.

Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations. The Group is exposed to credit risk on financial instruments such as liquid assets, derivative assets and trade receivables.

The carrying amount of financial assets represents the maximum credit exposure. The maximum exposure to credit risk at the reporting date was:

	Carrying amount	
	2017 £m	2016 £m
Available-for-sale financial assets	0.9	0.5
Trade and other receivables	174.7	184.5
Cash and cash equivalents	50.4	122.4
Derivatives	1.0	2.1
	227.0	309.5

Available-for-sale financial assets

The Group limits its exposure to credit risk by only investing in liquid securities and only with counterparties that have a sound credit rating. Given these high credit ratings, management does not expect any counterparty to fail to meet its obligations.

Notes to the consolidated financial statements continued

20. Financial risk management continued

Trade and other receivables

The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer. The demographics of the Group's customer base, including the default risk of the industries and countries in which customers operate, has less influence on credit risk.

Management has a credit policy in place and the exposure to credit risk is monitored on an ongoing basis. Credit evaluations are performed on all customers requiring credit over a certain amount. The Group does not require collateral in respect of financial assets.

The Group serves thousands of customers. Many of these have purchased the same product for several years and in some cases decades. Others have modified and enhanced designs or adopted the same components into new products, extending the lifecycle of the components that the Group supplies. The Group's level of customer retention is very high, particularly with its major accounts, and, although the top 20 ranking will alter from year to year, many of the names remain consistent over time.

The Group establishes an allowance for impairment that represents its estimate of incurred losses in respect of trade and other receivables and investments.

The ageing of trade receivables at the reporting date was:

	Gross 2017 £m	Impairment 2017 £m	Gross 2016 £m	Impairment 2016 £m
Not past due	140.7	(0.3)	153.1	(1.2)
Past due 0-30 days	21.4	(0.4)	21.1	(0.3)
Past due 31-60 days	5.4	(0.1)	4.7	(0.2)
Past due 61-90 days	4.4	(0.1)	2.7	(0.1)
Past due more than 90 days	15.6	(11.9)	18.4	(13.7)
	187.5	(12.8)	200.0	(15.5)

The only movement in the allowance for impairment in respect of trade receivables was a decrease of £2.7 million (2016: increase of £2.1 million).

A specific impairment allowance may be created in respect of an individual trade receivable for which full recovery is doubtful. As at 31 December 2017 and 31 December 2016 there were no specific impairment allowances that were significant to the Group.

The allowances in the accounts in respect of trade receivables are used to record impairment losses unless the Group is satisfied that no recovery of the amount owing is possible; at the point the amount is considered irrecoverable it is written off against the financial asset directly.

Cash, cash equivalents and derivatives

Cash balances held by companies representing over 75% of the Group's revenue are managed centrally through a number of pooling arrangements. Credit risk is managed by investing liquid assets and acquiring derivatives in a diversified way from high-credit-quality financial institutions. Counterparties are reviewed through the use of rating agencies, systemic risk considerations and through regular review of the financial press.

Liquidity and funding risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by cash. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions.

The Group seeks a balance between certainty of funding and a flexible, cost-effective borrowing structure. The policy is to ensure that the Group has sufficient borrowings and committed facilities to meet its medium-term financing requirements.

20. Financial risk management continued

The following are the undiscounted contracted maturities of financial liabilities, including interest payments:

	2017							
	Effective interest rate	Year of maturity	Carrying amount £m	Contractual cash flows £m	Less than 1 year £m	1-2 years £m	2-5 years £m	More than 5 years £m
Non-derivative financial liabilities								
6.26% US Dollar Senior Notes 2019	6.26%	2019	55.6	62.5	3.5	59.0	–	–
1.18% Euro Senior Notes 2023	1.18%	2023	22.2	23.9	0.3	0.3	0.8	22.5
3.17% US Dollar Senior Notes 2023	3.17%	2023	11.2	13.4	0.4	0.4	1.1	11.5
1.55% Euro Senior Notes 2026	1.55%	2026	22.3	25.2	0.3	0.3	1.0	23.6
3.37% US Dollar Senior Notes 2026	3.37%	2026	72.1	93.5	2.4	2.4	7.3	81.4
1.74% Euro Senior Notes 2028	1.74%	2028	8.9	10.7	0.2	0.2	0.5	9.8
Bank and other loans	–	up to 2019	38.8	38.9	38.2	0.1	0.6	–
Obligations under finance leases	4.19%	up to 2022	0.6	0.5	0.4	0.1	–	–
Trade and other payables			97.9	97.9	97.9	–	–	–
Derivative financial liabilities								
Forward exchange contracts as cash flow hedges			0.4	0.4	0.4	–	–	–
Forward exchange contracts as fair value hedges			0.2	0.2	0.2	–	–	–
Forward exchange contracts as net investment hedges			–	–	–	–	–	–
			330.2	367.1	144.2	62.8	11.3	148.8

	2016							
	Effective interest rate	Year of maturity	Carrying amount £m	Contractual cash flows £m	Less than 1 year £m	1-2 years £m	2-5 years £m	More than 5 years £m
Non-derivative financial liabilities								
4.32% Euro Senior Notes 2017	4.32%	2017	17.3	17.6	17.6	–	–	–
6.12% US Dollar Senior Notes 2017	6.12%	2017	142.1	150.5	150.5	–	–	–
6.26% US Dollar Senior Notes 2019	6.26%	2019	60.8	72.2	3.8	3.8	64.6	–
1.18% Euro Senior Notes 2023	1.18%	2023	21.3	23.1	0.3	0.3	0.8	21.7
3.17% US Dollar Senior Notes 2023	3.17%	2023	12.2	14.9	0.4	0.4	1.1	13.0
1.55% Euro Senior Notes 2026	1.55%	2026	21.4	24.7	0.3	0.3	1.0	23.1
3.37% US Dollar Senior Notes 2026	3.37%	2026	79.0	105.1	2.6	2.6	7.9	92.0
1.74% Euro Senior Notes 2028	1.74%	2028	8.6	10.3	0.1	0.1	0.4	9.7
Bank and other loans		up to 2019	1.3	1.4	1.3	0.1	–	–
Obligations under finance leases	4.56%	up to 2019	0.9	1.0	0.4	0.5	0.1	–
Trade and other payables			100.5	100.5	100.5	–	–	–
Derivative financial liabilities								
Forward exchange contracts as cash flow hedges			4.1	4.1	3.7	0.4	–	–
Forward exchange contracts as fair value hedges			5.5	5.5	5.5	–	–	–
Forward exchange contracts as net investment hedges			1.7	1.7	1.7	–	–	–
			476.7	532.6	288.7	8.5	75.9	159.5

Notes to the consolidated financial statements continued

20. Financial risk management continued

Cash flows associated with derivatives that are cash flow hedges

The following table indicates the periods in which cash flows associated with cash flow hedges are expected to occur. This is matched with the periods in which cash flows associated with cash flow hedges are expected to impact profit or loss.

	Carrying amount £m	Contractual cash flows £m	Less than 1 year £m	1-2 years £m	2-5 years £m	More than 5 years £m
Forward exchange contracts – Assets	1.0	88.9	81.8	7.1	–	–
Forward exchange contracts – Liabilities	(0.5)	(88.4)	(81.6)	(6.8)	–	–
Total 2017	**0.5**	**0.5**	**0.2**	**0.3**	–	–
Forward exchange contracts – Assets	0.8	88.5	69.7	15.6	3.2	–
Forward exchange contracts – Liabilities	(4.1)	(91.5)	(72.9)	(15.4)	(3.2)	–
Total 2016	(3.3)	(3.0)	(3.2)	0.2	–	–

Market risk

Market risk is the risk that changes in market prices, such as interest rates, foreign exchange rates and equity prices, will affect the Group's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimising the return on risk.

The Group buys and sells derivatives in the ordinary course of business for hedging purposes, and also incurs financial liabilities, in order to manage market risks. All such transactions are carried out in accordance with the Treasury Policy, which has been approved by the Audit Committee. Generally the Group seeks to apply hedge accounting in order to manage volatility in profit or loss.

Interest rate risk

The Group seeks to reduce the volatility in its interest charge caused by rate fluctuations. This is achieved through a combination of fixed rate debt and interest rate swaps. The proportions of fixed and floating rate debt are determined having regard to a number of factors, including prevailing market conditions, interest rate cycle, the Group's interest cover and leverage position and any perceived correlation between business performance and rates.

At the reporting date the interest rate profile of the Group's interest-bearing financial instruments was:

	Fixed rate instruments carrying amount		Variable rate instruments carrying amount	
	2017 £m	2016 £m	**2017 £m**	2016 £m
Financial assets	–	–	**50.4**	164.1
Financial liabilities	**(193.2)**	(413.6)	**(38.5)**	(0.8)
	(193.2)	(413.6)	**11.9**	163.3

The fixed rate financial liabilities predominantly comprise the currency equivalent of £192.3 million (2016: £362.7 million) of Senior Notes. The average cost of the Group's fixed rate instruments is 3.67% (2016: 4.1%).

An increase of 100 basis points in interest rates on the variable element of the Group's net debt* at the reporting date would have increased profit by £0.3 million (2016: £1.6 million). A decrease of 100 basis points would have decreased profit by £0.2 million (2016: increase £0.7 million). This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

20. Financial risk management continued

Foreign currency risk

Due to the international reach of the Group, currency transaction exposures exist. The Group has a policy in place to hedge all material firm commitments and a large proportion of highly probable forecast foreign currency exposures in respect of sales and purchases over the following 12 months, and achieves this through the use of the forward foreign exchange markets. A significant proportion of the forward exchange contracts have maturities of less than one year after the balance sheet date. The Group continues its practice of not hedging income statement translation exposure.

There are exchange control restrictions which affect the ability of a small number of the Group's subsidiaries to transfer funds to the Group. The Group does not believe such restrictions have had or will have any material adverse impact on the Group as a whole or the ability of the Group to meet its cash flow requirements.

The table below shows the Group's currency exposures, being exposures on currency transactions that give rise to net currency gains and losses recognised in the income statement. Such exposures comprise the monetary assets and liabilities of the Group that are not denominated in the functional currency of the operating company involved, other than certain non-GBP borrowings treated as hedges of net investments in overseas entities.

	2017			2016		
Functional currency of Group operations	**GBP £m**	**USD £m**	**Euro £m**	GBP £m	USD £m	Euro £m
Trade receivables	**1.9**	**9.1**	**5.8**	1.7	0.7	2.6
Cash and cash equivalents	**0.8**	**(2.0)**	**3.6**	0.8	47.8	3.4
Trade payables	**(2.0)**	**(10.0)**	**(5.6)**	(1.9)	(6.9)	(6.1)
Borrowings not designated as net investment hedges	**–**	**3.1**	**(0.9)**	–	(39.3)	(0.9)
Net balance sheet exposure	**0.7**	**0.2**	**2.9**	0.6	2.3	(1.0)

The amounts shown in the table take into account the effect of the forward contracts entered into to manage these currency exposures.

In respect of other monetary assets and liabilities held in currencies other than the currency of the reporting unit, the Group ensures that the net exposure is kept to an acceptable level, by buying or selling foreign currencies at spot rates where necessary to address short-term imbalances.

The Group classifies its forward exchange contracts hedging forecasted transactions as cash flow hedges and states them at fair value. The fair value of forward exchange contracts used as hedges of forecasted transactions at 31 December 2017 was an asset of £0.5 million (2016: liability of £3.3 million).

The contractual cash flows associated with the forward exchange contracts that are designated as cash flow hedges are shown in the section on liquidity risk. The impact on profit or loss is expected to occur at the same time as the associated cash flows.

Currency translation risks are controlled centrally. To defend against the impact of a permanent reduction in the value of its overseas net assets through currency depreciation, the Group seeks to match the currency of financial liabilities with the currency in which the net assets are denominated. This is achieved by raising funds in different currencies and through the use of hedging instruments such as swaps, and is implemented only to the extent that the Group's gearing covenant under the terms of its loan documents, as well as its facility headroom, are likely to remain comfortably within limits. In this way, the currency of the Group's financial liabilities becomes more aligned to the currency of the trading cash flows that service them.

The Group's currency split of total borrowings after the impact of net investment hedges was as follows:

	2017 £m	2016 £m
GBP	**10.3**	(0.5)
USD	**165.5**	294.0
Euro	**55.0**	70.2
Chinese renminbi	**–**	0.6
Other	**0.9**	0.6
	231.7	364.9

Notes to the consolidated financial statements continued

20. Financial risk management continued

The Group's sensitivity to changes in foreign exchange rates on financial assets and liabilities as at 31 December 2017 is as follows:

Based upon the currency profile of the Group's net financial assets and liabilities, if GBP had strengthened by 10%, reported net financial liabilities would have decreased by £13.0 million (2016: decrease of £28.5 million). Conversely, if GBP had weakened by 10%, reported net financial liabilities would have increased by £15.6 million (2016: increase of £34.1 million). Assuming the change occurred on the balance sheet date, there would be no impact on reported profit, as either the net financial liabilities are in the same currency as that of the respective Group entity, or the change would be offset by an equal and opposite change in the foreign currency monetary items in the Group's holding company.

The amounts generated from the sensitivity analysis are forward-looking estimates of market risk assuming certain adverse market conditions occur. Actual results in the future may differ materially from those projected results due to developments. The impact of a weakening in GBP on the Group's financial assets and liabilities would be more than offset in equity and income by its impact on the Group's overseas net assets and earnings respectively.

Exchange rates

The principal exchange rates used in the translation of the results of overseas subsidiaries were as follows:

	2017 Closing rate	2017 Average rate	2016 Closing rate	2016 Average rate
GBP to:				
USD	1.35	1.29	1.23	1.35
Euro	1.13	1.14	1.17	1.22

For illustrative purposes, the table below provides details of the impact on 2017 revenue, Group EBITA* and profit before tax if the actual reported results, calculated using 2017 average exchange rates, were restated for GBP weakening by 10 cents against USD in isolation and 10 cents against the Euro in isolation:

	2017 Revenue £m	2017 Group EBITA* £m	2017 Profit before tax £m	2016 Revenue £m	2016 Group EBITA* £m	2016 Profit before tax £m
Increase in Revenue/Group EBITA*/Profit before tax if:						
GBP weakens by 10c against USD in isolation	35.2	4.9	3.6	29.0	3.7	2.2
GBP weakens by 10c against the Euro in isolation	20.9	3.7	3.6	20.6	2.8	2.7

Other market price risk

Equity price risk arises from available-for-sale equity securities held for meeting partially the unfunded portion of the Group's defined benefit pension obligations. The primary goal of the Group's investment strategy is to maximise returns in order to meet partially the Group's unfunded defined benefit obligations.

Capital management

The Board's policy is to maintain a strong capital base (total equity) so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Board uses a number of measures, identified as key performance indicators (KPIs), to ensure the continued success of the Group.

The Board encourages employees of the Group to hold the Company's Ordinary shares. The Group operates a number of employee share and share option schemes. From time to time the Company purchases its own shares on the market; the timing of these purchases depends on market prices. Primarily the shares are intended to be used for issuing shares under the Group's various share option incentive schemes.

The Board seeks to maintain a balance between the advantages and security afforded by a sound capital position, and the higher returns that might be possible with higher levels of borrowings.

20. Financial risk management continued

The Group monitors capital using the following indicators:

Debt to adjusted capital

	2017 £m	2016 £m
Total interest-bearing loans and borrowings	231.7	364.9
Less: cash and cash equivalents and overdrafts	(50.4)	(122.4)
Net debt*	181.3	242.5
Total equity	234.3	164.7
Less: amounts accumulated in equity relating to cash flow hedges	(0.5)	2.5
Adjusted capital	233.8	167.2
Debt to adjusted capital ratio	0.8	1.5

Net debt* to EBITDA*

	2017 £m	2016 £m
Net debt* to EBITDA*	181.3	242.5
Operating profit before specific adjusting items, restructuring costs and other items	112.4	109.0
Depreciation and amortisation	37.9	37.4
EBITDA*	150.3	146.4
Net debt* to EBITDA* ratio	1.2x	1.6x
Interest cover		
EBITDA*	150.3	147.4
Net finance costs (excluding IAS 19 pension charge)	15.6	12.9
Interest cover	9.6x	11.4x

There were no changes in the Group's approach to capital management during the year.

Neither the Company nor any of its subsidiaries are subject to externally imposed capital requirements.

Notes to the consolidated financial statements continued

20. Financial risk management continued

Fair values

The fair values of financial assets and liabilities, together with the carrying amounts shown in the balance sheet, are as follows:

	Carrying amount 2017 £m	Fair value 2017 £m	Carrying amount 2016 £m	Fair value 2016 £m
Financial assets and liabilities at amortised cost				
4.32% Euro Senior Notes 2017	–	–	(17.3)	(17.5)
6.12% US Dollar Senior Notes 2017	–	–	(142.1)	(146.3)
6.26% US Dollar Senior Notes 2019	(55.6)	(57.9)	(60.8)	(65.4)
1.18% Euro Senior Notes 2023	(22.2)	(21.8)	(21.3)	(21.0)
3.17% US Dollar Senior Notes 2023	(11.2)	(10.7)	(12.2)	(11.7)
1.55% Euro Senior Notes 2026	(22.3)	(21.5)	(21.4)	(20.8)
3.37% US Dollar Senior Notes 2026	(72.1)	(67.4)	(79.0)	(73.1)
1.74% Euro Senior Notes 2028	(8.9)	(8.5)	(8.6)	(8.3)
Bank and other loans	(38.8)	(38.8)	(1.3)	(1.3)
Obligations under finance leases	(0.6)	(0.6)	(0.9)	(0.9)
Trade and other payables	(97.9)	(97.9)	(100.5)	(100.5)
Loans and receivables	174.7	174.7	184.5	184.5
Cash and cash equivalents	50.4	50.4	122.4	122.4
	(104.5)	(100.0)	(158.5)	(159.9)
Available-for-sale financial instruments				
Available-for-sale financial assets	0.9	0.9	0.5	0.5
Derivatives and other items at fair value				
Forward exchange contracts used for hedging	0.4	0.4	(2.0)	(2.0)
Cross-currency swaps used for hedging	–	–	(7.2)	(7.2)
	(103.2)	(98.7)	(167.2)	(168.6)

The following summarises the major methods and assumptions used in estimating the fair values of financial instruments reflected in the preceding table.

Equity securities

Fair value is based on quoted market prices at the balance sheet date.

Derivatives

Forward exchange contracts are marked to market either using listed market prices or by discounting the contractual forward price and deducting the current spot rate.

Interest-bearing loans and borrowings

Fair value is calculated based on discounted expected future principal and interest cash flows. The interest rates used to determine the fair value of loans and borrowings are 1.6-4.2% (2016: 1.1-4.2%) and finance leases 4.2% (2016: 4.1%).

Finance lease liabilities

The fair value is estimated as the present value of future cash flows, discounted at market interest rates for homogeneous lease agreements. The estimated fair values reflect changes in interest rates.

20. Financial risk management continued

Trade and other receivables/payables

For receivables/payables with a remaining life of less than one year, the notional amount is deemed to reflect the fair value. All other receivables/payables are discounted to determine the fair value.

Cash and cash equivalents, trade and other payables and loans and receivables

The Group has disclosed the fair value of cash and cash equivalents, current loans and receivables and current payables at their carrying amount, given their notional amount is deemed to be their fair value.

Fair value hierarchy

The table below analyses financial instruments carried at fair value, by valuation method. The different levels have been defined as follows:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities

Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices)

Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

	31 December 2017			31 December 2016		
	Level 1 £m	Level 2 £m	Total £m	Level 1 £m	Level 2 £m	Total £m
Available-for-sale financial assets	0.9	–	0.9	0.5	–	0.5
Derivative financial assets	–	1.0	1.0	–	2.1	2.1
	0.9	1.0	1.9	0.5	2.1	2.6
Derivative financial liabilities	–	0.6	0.6	–	11.3	11.3

The table below analyses financial instruments disclosed at fair value, by valuation method.

	31 December 2017			31 December 2016		
	Level 1 £m	Level 2 £m	Total £m	Level 1 £m	Level 2 £m	Total £m
4.32% Euro Senior Notes 2017	–	–	–	–	(17.5)	(17.5)
6.12% US Dollar Senior Notes 2017	–	–	–	–	(146.3)	(146.3)
6.26% US Dollar Senior Notes 2019	–	(57.9)	(57.9)	–	(65.4)	(65.4)
1.18% Euro Senior Notes 2023	–	(21.8)	(21.8)	–	(21.0)	(21.0)
3.17% US Dollar Senior Notes 2023	–	(10.7)	(10.7)	–	(11.7)	(11.7)
1.55% Euro Senior Notes 2026	–	(21.5)	(21.5)	–	(20.8)	(20.8)
3.37% US Dollar Senior Notes 2026	–	(67.4)	(67.4)	–	(73.1)	(73.1)
1.74% Euro Senior Notes 2028	–	(8.5)	(8.5)	–	(8.3)	(8.3)
Obligations under finance leases	–	(0.6)	(0.6)	–	(0.9)	(0.9)
	–	(188.4)	(188.4)	–	(365.0)	(365.0)

There have been no transfers between level 1 and level 2 during 2017 and 2016 and there were no level 3 financial instruments in either 2017 or 2016.

Notes to the consolidated financial statements
continued

21. Employee benefits

Accounting policies

(i) Defined contribution plans

For defined contribution plans, the Group pays contributions to either publicly or privately administered pension insurance plans, and the Group has no further payment obligations once the contributions have been paid. Obligations for contributions to defined contribution pension plans are recognised as an expense in the income statement as incurred.

(ii) Defined benefit plans

A defined benefit plan is any retirement plan which is not a defined contribution plan. Typically, defined benefit plans define an amount of retirement benefit that an employee will receive, usually depending on one or more factors such as age, years of service and earnings.

The Group's net obligation in respect of defined benefit pension plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value, and the fair value of any plan assets is deducted. The discount rate is the yield at the balance sheet date on AA-credit-rated bonds that have maturity dates approximating the terms of the Group's obligations. The calculation is performed by a qualified actuary using the projected unit credit method.

When the calculation results in a benefit to the Group, the recognised asset is limited to the total of the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. An economic benefit is available to the Group if it is realisable during the life of the plan, or on settlement of the plan liabilities. Remeasurement gains and losses, differences between the interest income and actual returns on assets, and the effect of changes in actuarial assumptions, are recognised in full in other comprehensive income in the year in which they arise.

(iii) Long-term service benefits

The Group's net obligation in respect of long-term service benefits, other than pension plans, is the amount of future benefit that employees have earned in return for their service in the current and prior periods. The obligation is calculated using the projected unit credit method, or similar approximation, and is discounted to its present value and the fair value of any related assets is deducted. The discount rate is the yield at the balance sheet date on AA-credit-rated bonds that have maturity dates approximating the terms of the Group's obligations.

(iv) Share-based payment transactions

The grant date fair value of share-based payment awards granted to employees is recognised as an expense, with a corresponding increase in equity, over the period that the employees become unconditionally entitled to the awards. The amount recognised as an expense is adjusted to reflect the actual number of awards for which the related service and non-market performance conditions are met, such that the amount ultimately recognised as an expense is based on the number of awards that meet the related service and non-market performance conditions at the vesting date.

Employee benefits – pensions

The Group operates a number of defined benefit arrangements as well as defined contribution plans. The defined benefit plans are primarily in the UK, USA and Europe and predominantly provide pensions based on service and career-average pay. In addition post-retirement medical plans are operated in the USA.

The Group has considered third-party powers and does not believe the Trustees have any powers that would prevent the Group obtaining a refund of any surplus on wind-up of the Scheme following gradual settlement of the plan obligations. As such the Group's interpretation is that the current version of IFRIC 14 does not have an impact and, as a result, any IAS 19 surplus can be recognised as an asset and it is not necessary to recognise additional liabilities in respect of contribution agreements reached with the pension scheme Trustees, managers or any third party.

21. Employee benefits continued

UK Schemes

In the UK, the Group operates two defined benefit pension schemes, the Morgan Pension Scheme and the Morgan Group Senior Staff Pension and Life Assurance Scheme ('the UK Schemes'). The two UK Schemes provide a benefit based upon an employee's total service, and their career average earnings (including allowance for consumer price inflation), although historically benefits were based upon an employee's final salary. Once in payment, pensions receive increases as set out in the rules, at either a fixed level, or in line with the Retail Price Index. The overall duration of the UK Schemes is around 18 years.

The UK Schemes' assets are held in trustee-administered funds which are governed by UK regulations, as is the nature of the relationship between the Group and the Trustees. Responsibility for the governance of the UK Schemes – including investment decisions and contribution schedules – lies with the Board of Trustees which must consult with the Company on such matters. The Board of Trustees must be composed of representatives of the Company, plan participants and an independent trustee, in accordance with the UK Schemes governing documents.

Funding legislation in the UK requires that schemes are fully funded on a scheme-specific basis as measured, and this must be assessed at least every three years. To the extent that there is a deficit against this measure, a payment schedule must be agreed such that the deficit is removed over a reasonable period of time, typically around 10 years.

The most recent full actuarial valuations of the UK Schemes were undertaken as at March 2016 and resulted in combined assessed deficits of £132 million. On the basis of these full valuations, the Trustees of the UK Schemes, having consulted with the Group, agreed past service deficit recovery payments totalling £12 million a year from April 2017, increasing by 2.75% pa until 2025, with further payments to Morgan Pension Scheme for 2026 and 2027 and contributions in respect of future service as accrued. New full valuations are due with effective dates of March 2019 and the outcome of those consultations will determine the Group's future contribution requirements, with any new deficit arising needing to be met through the payment of additional contributions.

The UK Schemes were closed to new entrants on 1 August 2011, with any new employees receiving benefits through the Morgan Group Personal Pension Plan, a defined contribution arrangement. The Morgan Group Senior Staff Pension and Life Assurance Scheme was closed to the future accrual of benefits on and with effect from 6 April 2016. Employees active in the Scheme as at that date were enrolled in The Morgan Group Personal Pension Plan, with the option to opt out under relevant UK legislation. Following a consultation exercise with the remaining active members of the Morgan Pension Scheme in May and June 2017, the Trustee of the Scheme agreed to a Company proposal to close the Scheme to the future accrual of benefits with effect from 6 April 2018. Again employees active in the Scheme at that date will be auto-enrolled into The Morgan Group Personal Pension Plan for their future pension benefits.

US schemes

The Group operates a tax qualified defined benefit pension scheme in the US ('MUSE DB Scheme'), and a Supplemental Executive Retirement Plan ('SERP') which is not tax approved. The MUSE Scheme is frozen, and therefore employees accrue benefits within a 401k arrangement.

The US Schemes provide a benefit based upon an employee's service and earnings. The benefits are level both prior to, and whilst in, payment. Overall, the US Schemes' duration is around 11 years.

The qualified US Schemes' assets are held in a trust separately from the Group's assets. For the SERP the Group holds an asset to meet the obligations however, due to its nature this is accounted for as a Group asset, rather than an asset of the SERP. Responsibility for the governance of the US Schemes, including investment decisions and contribution schedules, lies with a management committee, all of whose members are appointed by the Group.

The funding requirements in the USA, ERISA, require schemes to be fully funded at all times, and if not to target full funding within a period of seven years.

The most recent full actuarial valuation of the US MUSE DB Scheme was undertaken as at 1 January 2017 and the deficit on this funding basis totalled £4.5 million. On the more stringent DBO (Defined Benefit Obligation) basis used for IAS19 purposes, the deficit as at 31 December 2016 totalled £41 million. The Group made contributions totalling £36 million ($46 million) in 2017, including an additional accelerated payment in December 2017 of £28 million ($36 million). As a result of this contribution and positive asset performance over the year, the Scheme is now close to being fully funded on a DBO basis and no further significant contributions to the Scheme are anticipated in the medium term.

Notes to the consolidated financial statements continued

21. Employee benefits continued

European schemes

In Europe, the Group operates a number of retirement schemes, with the bulk of the obligations relating to arrangements for employees in Germany. In line with local practice these arrangements are not funded in advance, with benefits being met by the Group as they fall due.

	2017 UK £m	2017 USA £m	2017 Europe £m	2017 Rest of the World £m	2017 Total £m
Pension plans and employee benefits					
Present value of unfunded defined benefit obligations	–	(8.3)	(35.2)	(2.7)	(46.2)
Present value of funded defined benefit obligations	(593.7)	(138.4)	(2.0)	(10.0)	(744.1)
Fair value of plan assets	427.7	135.6	0.5	8.5	572.3
Net obligations	(166.0)	(11.1)	(36.7)	(4.2)	(218.0)
Movements in present value of defined benefit obligation					
At 1 January 2017	(588.7)	(155.9)	(37.9)	(12.3)	(794.8)
Current service cost	(2.0)	(0.1)	(0.7)	(1.7)	(4.5)
Interest cost	(14.9)	(6.0)	(0.6)	(0.2)	(21.7)
Actuarial gains/(losses)					
Experience gains/(losses) on plan obligations	(3.0)	(1.0)	0.5	0.4	(3.1)
Changes in financial assumptions – gain/(loss)	(16.8)	(7.7)	0.1	0.1	(24.3)
Changes in demographic assumptions – gain/(loss)	9.2	1.3	–	–	10.5
Benefits paid	23.0	8.9	1.3	1.0	34.2
Contributions by members	(0.5)	–	–	–	(0.5)
Past service costs/(credit)	–	–	–	–	–
Curtailments and settlements	–	–	–	–	–
Acquisitions/Disposals	–	–	1.6	–	1.6
Exchange adjustments	–	13.8	(1.5)	–	12.3
At 31 December 2017	(593.7)	(146.7)	(37.2)	(12.7)	(790.3)
Movements in fair value of plan assets					
At 1 January 2017	408.2	106.9	0.4	8.2	523.7
Interest on plan assets	10.4	4.2	0.1	0.1	14.8
Actuarial gains/(losses)	19.8	7.5	0.1	(0.5)	26.9
Contributions by employer	12.1	37.0	1.2	1.5	51.8
Contributions by members	0.5	–	–	–	0.5
Administrative expenses	(0.3)	–	–	–	(0.3)
Benefits paid	(23.0)	(8.9)	(1.3)	(1.0)	(34.2)
Curtailments and settlements	–	–	–	–	–
Acquisitions/Disposals	–	–	–	–	–
Exchange adjustments	–	(11.1)	–	0.2	(10.9)
At 31 December 2017	427.7	135.6	0.5	8.5	572.3
Actual return on assets	30.2	11.7	0.2	(0.4)	41.7

21. Employee benefits continued

Pension plans and employee benefits	2017 UK £m	2017 USA £m	2017 Europe £m	2017 Rest of the World £m	2017 Total £m
Expense recognised in the consolidated income statement					
Current service cost	(2.0)	(0.1)	(0.7)	(1.7)	(4.5)
Administrative expenses[1]	(0.3)	–	–	–	(0.3)
Net interest on net defined benefit liability	(4.5)	(1.8)	(0.5)	(0.1)	(6.9)
Gain/(loss) on curtailments and settlements	–	–	–	–	–
Total (expense)/income	(6.8)	(1.9)	(1.2)	(1.8)	(11.7)

1. In 2017, in addition to the above the Group directly incurred £0.5 million and £1.6 million of administrative expenses in relation to the UK and USA schemes respectively, which have been recognised in overheads outside of the pension liability (2016: £1.6million, USA schemes only).

	2017 £m	2016 £m
Operating costs (including administration expenses incurred by the Group directly)	(6.9)	(6.8)
Net finance expense	(6.9)	(7.1)
Total expense before specific adjusting items	(13.8)	(13.9)
Net pension settlement credit (within specific adjusting items)	–	7.4
Total expense	(13.8)	(6.5)

Statement of financial position reconciliation

	2017 £m	2016 £m
At 1 January 2017	(271.1)	(204.5)
Pension expense	(11.7)	(4.9)
Contributions	51.8	20.8
Other comprehensive income	10.0	(68.0)
Acquisitions/Disposals	1.6	–
Exchange adjustments	1.4	(14.5)
At 31 December 2017	(218.0)	(271.1)

The Group expects to contribute £16.3 million to these arrangements in 2018.

	UK £m	USA £m	Europe £m	Rest of the World £m	Total £m
Estimate of employer contributions to be paid into the plans during the 12-month period beginning 1 January 2018	12.5	0.9	1.4	1.5	16.3

The fair values of the plan assets were as follows:

	2017 UK £m	2017 USA £m	2017 Europe £m	2017 Rest of the World £m	2017 Total £m
Equities and growth assets	157.7	6.8	–	–	164.5
Bonds and LDI	87.3	124.0	–	–	211.3
Matching insurance policies	181.3	–	0.5	6.0	187.8
Other	1.4	4.8	–	2.5	8.7
Total	427.7	135.6	0.5	8.5	572.3

The assumptions used are best estimate assumptions chosen from a range of possible actuarial assumptions which may not be borne out in practice. The principal assumptions are the discount rate and inflation assumptions which are long-term and measured on external factors, based upon each plan's duration. In addition to these, the mortality assumption in the UK and USA is material to the cost of the promised benefits. In both the UK and Europe, the assumed increases in salaries and pensions in payment are derived from assumed future inflation.

Notes to the consolidated financial statements continued

21. Employee benefits continued

The rates shown below are single equivalents for the obligations as a whole derived from discounting along the yield curve. In line with IAS 19, in determining the value of the annuity contract held in the UK we have reflected the same methodology as used to value the corresponding obligations, reflecting the actual cashflow profile and duration of the insured obligations, rather than those of the Schemes as a whole.

Actuarial assumptions were:

	2017 UK %	2017 USA %	2017 Europe %	2017 Rest of the World %
Discount rate	2.38	3.65	1.60	3.20
Salary increase	n/a	n/a	2.20	5.00
Inflation (UK: RPI/CPI)	3.12/2.02	n/a	1.70	n/a
Pensions increase[1]	3.0/3.0/3.6	n/a	1.70	n/a
Mortality – post-retirement:				
Life expectancy of a male aged 60 in accounting year	26.61	25.00	23.85	n/a
Life expectancy of a male aged 60 in accounting year + 20	28.2	26.7	26.6	n/a

1. Pension increases in the UK reflect both fixed rate and RPI related increases to different elements of members' pensions.

The actual liability in respect of global employee benefits will not be known until the last payments have been made. In placing a current estimate on the Group's past service benefit obligations, a number of assumptions about the future are required. For defined benefit schemes, the Directors make annual estimates and assumptions in respect of discount rates, future changes in salaries, employee turnover, inflation rates and life expectancy. In making these estimates and assumptions, the Directors consider advice provided by external advisers, such as actuaries.

The accounting assumptions noted above are used to calculate the year-end net pension liability in accordance with the relevant accounting Standard, IAS 19 (revised) Employee Benefits. Changes in these assumptions have no impact on the Group's cash payments to their arrangements. The payments due are calculated based on local funding requirements, or in the case of the Group's unfunded arrangements on the incidence of benefit payments falling due.

The sensitivities of the Group's net balance sheet to the principal assumptions are:

	Change in assumption	2017 Increase effect on deficit £m	2016 Increase effect on deficit £m
Discount rate	Decrease by 0.1%	10.5	10.8
Inflation	Increase by 0.1%	4.5	4.7
Mortality – post-retirement	Pensioners live 1 year longer	17.6	23.4
Exchange rates	GBP weakens against USD by 10%	1.2	5.4
	GBP weakens against EUR by 10%	4.1	4.2

These sensitivities have been calculated to show the movement in the net balance sheet in isolation, and assuming no other changes in market conditions at the accounting date. This is unlikely in practice – for example, a change in discount rate is unlikely to occur without any movement in the value of the assets held by the Group's Schemes.

21. Employee benefits continued

Defined contribution plans

The Group operates a number of defined contribution pension plans. The total expense relating to these plans in the current year was £9.5 million (2016: £8.7 million). The Group expects to contribute £10.7 million to these arrangements in 2018 (£10.0 million excluding contributions arising from salary sacrifice by employees in the UK).

Pension plans and employee benefits	2016 UK £m	2016 USA £m	2016 Europe £m	2016 Rest of the World £m	2016 Total £m
Present value of unfunded defined benefit obligations	–	(9.4)	(35.9)	(2.5)	(47.8)
Present value of funded defined benefit obligations	(588.7)	(146.5)	(2.0)	(9.8)	(747.0)
Fair value of plan assets	408.2	106.9	0.4	8.2	523.7
Net obligations	(180.5)	(49.0)	(37.5)	(4.1)	(271.1)
Movements in present value of defined benefit obligation					
At 1 January 2016	(500.9)	(178.9)	(28.7)	(14.9)	(723.4)
Current service cost	(1.9)	(0.1)	(0.7)	(1.6)	(4.3)
Interest cost	(18.1)	(7.7)	(0.7)	(0.3)	(26.8)
Remeasurement gains/(losses):					
Changes in financial assumptions	14.4	4.4	(0.3)	(2.2)	16.3
Changes in demographic assumptions	(105.6)	(11.2)	(3.8)	–	(120.6)
Experience adjustments on benefit obligations	4.9	4.8	–	–	9.7
Benefits paid	19.2	9.1	1.1	1.6	31.0
Contributions by members	(0.7)	–	–	–	(0.7)
Curtailments and settlements	–	53.4	–	6.4	59.8
Exchange adjustments	–	(29.7)	(4.8)	(1.3)	(35.8)
At 31 December 2016	(588.7)	(155.9)	(37.9)	(12.3)	(794.8)
Movements in fair value of plan assets					
At 1 January 2016	383.5	123.8	0.4	11.2	518.9
Interest on plan assets	14.0	5.4	–	0.3	19.7
Remeasurement gains	21.1	3.4	0.1	2.0	26.6
Contributions by employer	9.0	8.7	1.0	2.1	20.8
Contributions by members	0.7	–	–	–	0.7
Benefits paid	(19.2)	(9.1)	(1.1)	(1.6)	(31.0)
Administrative expenses[1]	(0.9)	–	–	–	(0.9)
Curtailments and settlements	–	(45.9)	–	(6.5)	(52.4)
Exchange adjustments	–	20.6	–	0.7	21.3
At 31 December 2016	408.2	106.9	0.4	8.2	523.7
Actual return on assets	35.1	8.8	0.1	2.3	46.3

Pension plans and employee benefits	2016 UK £m	2016 USA £m	2016 Europe £m	2016 Rest of the World £m	2016 Total £m
Expense recognised in the consolidated income statement					
Current service cost and past service cost	(1.9)	(0.1)	(0.7)	(1.6)	(4.3)
Administrative expenses	(0.9)	–	–	–	(0.9)
Net interest on net defined benefit liability	(4.1)	(2.3)	(0.7)	–	(7.1)
Gain/(loss) on curtailments and settlements	–	7.5	–	(0.1)	7.4
Total expense	(6.9)	5.1	(1.4)	(1.7)	(4.9)

Notes to the consolidated financial statements continued

21. Employee benefits continued

Actuarial assumptions were:

	2016 UK %	2016 USA %	2016 Europe %	2016 Rest of the World %
Discount rate	2.62	4.16	1.60	2.90
Inflation (UK: RPI/CPI)	3.20/2.10	n/a	1.70	n/a
Salary increase	n/a	n/a	2.20	5.00
Pensions increase	3.00/3.10/3.70	n/a	1.70	n/a
Mortality – post-retirement:				
Life expectancy of a male aged 60 in accounting year	26.8	25.1	23.7	n/a
Life expectancy of a male aged 60 in accounting year + 20	28.7	26.8	26.5	n/a

Risks

Through its defined benefit pension schemes, the Group is exposed to a number of risks, the most significant of which are detailed below:

The balance sheet net pension liability is a snapshot view which can be significantly influenced by short-term market factors.

The calculation of the surplus or deficit depends, therefore, on factors which are beyond the control of the Group – principally the value at the balance sheet date of equity shares in which the Scheme has invested and long-term interest rates which are used to discount future liabilities. The funding of the Scheme is based on long-term trends and assumptions relating to market growth, as advised by qualified actuaries and investment advisers.

Investment returns: The Group's net balance sheet and contribution requirements are heavily dependent upon the return on the assets invested in by the schemes.

Longevity: The cost to the Group of the pensions promised to members is dependent upon the expected term of these payments. To the extent that members live longer than expected this will increase the cost of these arrangements.

Inflation rate risk: In the UK, the pension promises are, in the main, linked to inflation, and higher inflation will lead to higher liabilities.

The above risks have been mitigated for a large proportion of the UK Schemes' pensioner population through the purchase of an insurance policy, the payments from which exactly match the promises made to employees. Remaining investment risks have also been mitigated to some extent by diversification of the return-seeking assets and backing uninsured pensioner liabilities by bonds and swaps.

In addition, the IAS 19 defined benefit obligation is linked to yields on AA-rated corporate bonds; however the majority of the Group's arrangements invest in a number of other assets which will move in a different manner from these bonds. Therefore, changes in market conditions may lead to volatility in the net pension liability on the Group's balance sheet and in other comprehensive income, and to a lesser extent in the IAS 19 pension expense in the Group's income statement.

21. Employee benefits continued

Share-based payments

The Group operates various share option programmes that allow Group employees to acquire shares in the Company. During 2017, awards were made to Executives under the Morgan Advanced Materials plc Long-Term Incentive Plan ('LTIP') and for the first time under the Morgan Advanced Materials Deferred Bonus Plan ('DBP'). No awards were made under The Morgan Advanced Materials Bonus Deferral Share Matching Plan ('BDSMP'), although awards remained outstanding from prior years. The Company also maintains a UK all-employee Sharesave scheme ('Employee Sharesave Scheme 2004'). The grant date fair value of options granted to employees is recognised as an employee expense, with a corresponding increase in equity, over the period that the employees become unconditionally entitled to the options. The amount recognised as an expense is adjusted to reflect the actual number of share options for which the related service and non-market vesting conditions are met.

The fair values of the options and awards under each scheme have been measured using the following models:

LTIP and BDSMP	Monte Carlo model
Restricted Share Award	Monte Carlo model
Employee Sharesave Scheme 2004	Modified binomial model
DBP	Monte Carlo model

The following options and awards were outstanding at 31 December 2017 in respect of ordinary shares:

	Exercise/Award price(s)	Number of shares outstanding	Exercise dates ranging from	to
LTIP	0.00p	4,284,206	28 February 2017	23 May 2026
BDSMP	0.00p-347.50p	298,123	24 March 2017	24 September 2018
DBP	0.00p	45,676	3 March 2020	3 March 2020
Employee Sharesave Scheme 2004	233.00p-264.00p	1,200,950	1 December 2016	31 May 2020

Performance metrics for LTIP and BDSMP

The key performance metrics used in the plans are:

Total Shareholder Return ('TSR') – the return (expressed as a percentage) on a notional investment in one share in the Company expressed as follows:

(a) the average share price over the last three months of the performance period; plus (b) the net dividends per share paid during the performance period reinvested in Company shares at the ex-dividend date; divided by (c) the average share price over the three months preceding the performance period.

Earnings Per Share ('EPS') – (for the LTIP and BDSMP) profit before taxation less the charge for non-controlling interests in any financial year of the Group, adjusted by the Remuneration Committee to exclude the effect of amortisation of intangible assets, charges related to IAS 39 Financial Instruments: Recognition and Measurement and the effect of any other special items which the Remuneration Committee does not, in its discretion, consider to reflect underlying operating performance, divided by the weighted average number of shares in issue during the relevant financial years (defined on a pre-taxation basis).

Group headline operating profit* – operating profit before specific adjusting items and amortisation of intangible assets. The Remuneration Committee may also make further adjustments to exclude items which it does not, in its discretion, consider to reflect the underlying operating performance of the Group during the relevant financial years.

Group Return on Capital Employed ('ROCE')* – Group headline operating profit*, divided by the working capital and the net book value of property, plant and equipment, and land and buildings at the end of the relevant financial years.

Notes to the consolidated financial statements continued

21. Employee benefits continued

Group average Return on Invested Capital Employed ('ROIC')* – Group headline operating profit* (operating profit excluding specific adjusting items and amortisation of intangible assets) divided by the 12-month average adjusted net assets (third-party working capital, property, plant and equipment, land and buildings, intangible assets and other balance sheet items), at the end of the relevant financial years.

For the TSR elements of the plans, for performance between median and upper quartile, awards are made on a straight-line, pro-rata basis. Similarly for EPS, Group headline operating profit* and Group average ROCE* for performance between the identified trigger points, awards are made on a straight-line, pro-rata basis.

Share Plans Terms and Conditions

Below are the terms and conditions of all awards and grants made that were outstanding on or after 1 January 2017:

Grant date/Employees entitled	Number of instruments granted	Vesting conditions	Contractual life of option
Awards granted to senior employees in 2017 under the LTIP	1,448,297	Three years of service plus satisfaction of performance metrics	3 years
Awards granted to senior employees in 2017 under the DBP	45,676	Continued employment	3 years
Awards granted to senior employees in 2016 under the LTIP	1,859,775	Three years of service plus satisfaction of performance metrics	3 years
Awards granted to senior employees in 2015 under the BDSMP	499,634	Three years of service plus satisfaction of performance metrics	3 years
Awards granted to senior employees in 2015 under the LTIP	1,168,758	Three years of service plus satisfaction of performance metrics	3 years
Restricted Share Award granted to the Chief Executive Officer in 2015	114,351	Continued employment	2 years 5 months
Awards granted to senior employees in 2014 under the BDSMP	105,726	Three years of service plus satisfaction of performance metrics	3 years
Awards granted to senior employees in 2014 under the LTIP	1,182,302	Three years of service plus satisfaction of performance metrics	3 years

Performance metrics for LTIP

The performance metrics for LTIP awards are set annually. The Company has given an undertaking to shareholders that awards will only vest if there is also an improvement in underlying financial performance. Awards will only vest therefore if the Remuneration Committee is satisfied that the Group's underlying financial performance over the performance period justifies vesting.

2014 LTIP awards

For LTIP awards granted to all participants in 2014, the extent to which 33% of the awards vest depends on the Company's TSR ranking against an appropriate comparator group over the period from 1 January 2014 to 31 December 2016. The extent to which 33% of these awards vest depends on the growth in the Company's EPS between the 2013 base financial year and the 2016 financial year. The extent to which 33% vest depends on the Group's ROCE* for the financial year ending 31 December 2016:

TSR element		EPS element		ROCE* element	
TSR against FTSE All-Share Industrials Index	% of award that vests	EPS growth	% of award that vests	ROCE*	% of award that vests
Upper quartile	33.33%	15% pa	33.33%	37%	33.33%
Median	10%	8% pa	10%	33%	10%
Below median	Nil	< 8% pa	Nil	< 33%	Nil

21. Employee benefits continued

2015 LTIP Awards

For LTIP awards granted to all participants in 2015, the extent to which 33% of the awards vest depends on the Company's TSR ranking against an appropriate comparator group over the period from 1 January 2015 to 31 December 2017. The extent to which 33% of these awards vest depends on the growth in the Company's EPS between the 2014 base financial year and the 2017 financial year. The extent to which 33% vest depends on the Group's ROCE* for the financial year ending 31 December 2017:

TSR element		EPS element		ROCE* element	
TSR against FTSE All-Share Industrials Index	% of award that vests	EPS growth	% of award that vests	ROCE*	% of award that vests
Upper quartile	33.33%	15% pa	33.33%	33%	33.33%
Median	10%	6% pa	10%	27%	10%
Below median	Nil	< 6% pa	Nil	< 27%	Nil

2016 LTIP Awards

For LTIP awards granted to all participants in 2016, the extent to which 33% of the awards vest depends on the Company's TSR ranking against two comparator groups; the FTSE All-Share Industrials Index comprising 118 companies and a bespoke comparator group of 17 industry comparators over the period from 1 January 2016 to 31 December 2018. The extent to which 33% of these awards vest depends on the growth in the Company's EPS between the 2015 base financial year and the 2018 financial year. The extent to which 33% vest depends on the Group's ROCE* for the financial year ending 31 December 2018:

TSR (FTSE All-Share Industrials Index)		TSR (bespoke comparator group)		EPS element		ROCE* element	
TSR against FTSE All-Share Industrials Index	% of award that vests	TSR against Tailored Comparator Group	% of award that vests	EPS growth	% of award that vests	ROCE*	% of award that vests
Upper quartile	16.67%	Upper quartile	16.67%	11% pa	33.33%	33%	33.33%
Median	4.17%	Median	4.17%	4% pa	8.33%	27%	8.33%
Below median	Nil	Below median	Nil	< 4% pa	Nil	< 27%	Nil

2017 LTIP Awards

For LTIP awards granted to all participants in 2017, the extent to which 33% of the awards vest depends on the Company's TSR ranking against two comparator groups; the FTSE All-Share Industrials Index comprising 118 companies and a bespoke comparator group of 16 industry comparators over the period from 1 January 2017 to 31 December 2019. The extent to which 33% of these awards vest depends on the growth in the Company's EPS between the 2016 base financial year and the 2019 financial year. The extent to which 33% vest depends on the Group's ROIC* for the financial year ending 31 December 2019:

TSR (FTSE All-Share Industrials Index)		TSR (bespoke comparator group)		EPS element		ROCE* element	
TSR against FTSE All-Share Industrials Index	% of award that vests	TSR against Tailored Comparator Group	% of award that vests	EPS growth	% of award that vests	ROCE*	% of award that vests
Upper quartile	16.67%	Upper quartile	16.67%	11% pa	33.33%	19%	33.33%
Median	4.17%	Median	4.17%	4% pa	8.33%	16%	8.33%
Below median	Nil	Below median	Nil	< 4% pa	Nil	< 16%	Nil

Notes to the consolidated financial statements continued

21. Employee benefits continued

Performance metrics for the BDSMP

The BDSMP was introduced following shareholder approval in 2008.

Under the plan rules, participants may be offered the opportunity to defer up to 75% of their annual bonus on a pre- or post-tax basis into Company shares. Participants must hold the deferred shares for three years to be eligible for a matching award based on the pre-tax value of their deferred shares. Matching shares may be earned at the end of three years in the event that stretching performance metrics have been met. The performance metrics for the BDSMP are set annually.

Under the 2014 and 2015 grants participants were given the opportunity to defer up to 50% of their bonus under the BDSMP and the performance metrics are based on EPS growth targets relative to the 2011, 2012, 2013 and 2014 base years respectively:

EPS performance	Vesting of matching shares (as multiple of the shares under the deferred award)
20% pa	3x match
16% pa	2x match
12% pa	1x match
8% pa	Nil
< 8% pa	Nil

The BDSMP is no longer offered and therefore no awards were made under the BDSMP in 2016 or 2017.

Restricted Share Award

On 3 August 2015, an award over 114,351 ordinary 25 pence shares in the Company was made to Pete Raby, Chief Executive Officer. This award was granted in accordance with Listing Rule 9.4.2(2) and was made in recognition of the loss of incentive awards which he forfeited on leaving his former employer. Vesting is subject to Pete Raby not having resigned or been dismissed in specified circumstances. There are no performance conditions attached to this award.

The first tranche of 57,176 shares vested on 31 December 2016. The second tranche of 57,175 shares vested on 29 December 2017. No shares remain outstanding under this award.

2017 DBP

The first awards under the DBP were made in 2017.

Participants defer an element of their earned annual bonus into Company shares. Participants receive conditional awards over shares that vest three years from the award date.

The awards carry the right to individual reinvestment. There are no performance conditions attached.

Employee Sharesave Scheme 2004 terms and conditions

The terms and conditions of awards/grants that were outstanding on or after 1 January 2017 that are not covered in the information above are as follows:

Grant date/Employees entitled	Number of instruments granted	Vesting conditions	Contractual life of option
Options granted to UK employees in 2017 under the Employee Sharesave Scheme 2004	342,556	Three years of service	3 years
Options granted to UK employees in 2016 under the Employee Sharesave Scheme 2004	573,247	Three years of service	3 years
Options granted to UK employees in 2015 under the Employee Sharesave Scheme 2004	640,447	Three years of service	3 years
Options granted to UK employees in 2014 under the Employee Sharesave Scheme 2004	404,687	Three years of service	3 years
Options granted to UK employees in 2013 under the Employee Sharesave Scheme 2004	463,394	Three years of service	3 years

21. Employee benefits continued

Share plans – further details

	Awards made in 2017 LTIP 2004	Awards made in 2017 Employee Sharesave Schemes 2004
Fair value at measurement date	119.50-287.90p	60.00p
Share price	319.50p	300.00p
Exercise price	n/a	239.00p
Expected volatility (expressed as weighted average volatility used in the model)	35%	35%
Option life (expressed as weighted average life used in the model)	3 years	3 years
Expected dividends	3.4%	3.7%
Risk-free interest rate	0.2%	0.5%

The expected volatility is based on the historic volatility (calculated based on the weighted average remaining life of the share options) adjusted for any expected changes to future volatility due to publicly available information.

The numbers and weighted average exercise prices of share options are as follows:

	Weighted average exercise price 31 December 2017	Number of options 31 December 2017	Weighted average exercise price 31 December 2016	Number of options 31 December 2016
Outstanding at the beginning of the period	72.11p	5,595,917	110.42p	5,919,623
Granted during the period	54.01p	1,814,576	57.15p	2,348,973
Forfeited during the period	37.88p	(1,487,228)	84.90p	(838,500)
Exercised during the period	172.24p	(594,010)	227.94p	(611,779)
Lapsed during the period	246.57p	(45,150)	18.51p	(1,222,400)
Outstanding at the end of the period	62.76p	5,284,105	72.11p	5,595,917
Exercisable at the end of the period	256.00p	66,257	172.91p	194,327

The weighted average share price at the date of share options exercised during the period was 284.99 pence (2016: 241.33 pence).

The options outstanding at the year end have an exercise price in the range nil to 264.00 pence (2016: 347.50 pence)

The fair value of services received in return for share options granted is measured by reference to the fair value of share options granted.

The weighted average fair value of options issued during 2017 was 189.66 pence (2016: 138.17 pence).

The IFRS 2 fair value charge expensed to the income statement in 2017 was £1.7 million (2016: £0.8 million).

22. Provisions and contingent liabilities

Accounting policies

A provision is recognised in the Consolidated Statement of Financial Position when the Group has a present legal or constructive obligation as a result of a past event, and there is probable outflow of resources which that can be reliably measured and will be required to settle the obligation. Provisions are recognised at an amount equal to the best estimate of the expenditure required to settle the Group's liability, if the effect is material, provisions are determined by discounting the expected future cash flows at a pre-tax rate reflective of the current markets assessments of the time value of money, and where appropriate, the risks specific to the liability.

A contingent liability is disclosed where the existence of the obligation will only be confirmed by future events or where the amount of the obligation cannot be measured with reasonable reliability. A contingent liability is not disclosed if the likelihood of a material outflow in excess of any amounts provided is considered remote. Contingent assets are not recognised, but are disclosed where an inflow of economic benefit is probable. Obligations arising from restructuring plans are recognised when detailed formal plans have been established and when there is a valid expectation that such a plan will be carried out.

The Group's contingent liabilities are reviewed on a regular basis. The Board is of the opinion that in respect of the Group's contingent liabilities, where it is possible to form a view, that they will not have a material impact on the Group's financial position.

In a number of jurisdictions companies have a constructive obligation to remedy any known environmental problems.

Notes to the consolidated financial statements continued

22. Provisions and contingent liabilities continued

Provisions

	Closure and restructuring provisions £m	Other provisions £m	Environmental provisions £m	Total £m
Balance at 31 December 2016	1.7	5.8	0.6	8.1
Provisions made during the year	9.5	1.1	1.3	11.9
Provisions used during the year	(1.5)	(2.2)	(0.7)	(4.4)
Provisions reversed during the year	–	(0.9)	–	(0.9)
Effect of movements in foreign exchange	(0.2)	–	–	(0.2)
Balance at 31 December 2017	9.5	3.8	1.2	14.5
Current	3.1	2.2	0.8	6.1
Non-current	6.4	1.6	0.4	8.4
	9.5	3.8	1.2	14.5

Closure and Restructuring Provisions

Closure and restructuring provisions are based on the Group's restructuring programmes and represent committed expenditure at the balance sheet date. The amounts provided are based on the costs of terminating relevant contracts, under the contract terms, and management's best estimate of other associated restructuring costs including professional fees, most of which are expected to be incurred over the next year. Due to the nature of the provision for closure and restructuring provisions, the timing of any future potential future outflows in respect of these liabilities is uncertain until the restructuring programme is completed.

Legal and other provisions

Legal and other provisions mainly comprise amounts provided against open legal and contractual disputes arising in the normal course of business and long-service costs.

The Company has on occasion been required to take legal or other actions to protect its intellectual property rights, to enforce commercial contracts or otherwise and similarly to defend itself against proceedings brought by other parties. Provisions are made for the expected costs associated with such matters, based on past experience of similar items and other known factors, taking into account professional advice received, and represent management's best estimate of the most likely outcome. The timing of utilisation of these provisions is frequently uncertain, reflecting the complexity of issues and the outcome of various court proceedings and associated negotiations.

Other provisions represent the Directors' best estimate of the cost of settling current obligations although there is a higher degree of judgement involved. Unless specific evidence exists to the contrary, these provisions are shown as current.

Where obligations are not capable of being reliably estimated, or if a material outflow of economic resources is considered remote, it is classified as a contingent liability. The Directors are of the opinion that any associated claims that might be brought can be defeated successfully and, therefore, the possibility of any material outflow in settlement is assessed as remote.

Subsidiary undertakings within the Group have given unsecured guarantees of £11.2 million (2016: £13.2 million) in the ordinary course of business.

Environmental provisions

The Group's operations are subject to various environmental laws and regulations, the Group is in material compliance with those laws and regulations.

Environmental provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and the amount is capable of being reliably estimated. These provisions are adjusted as new information develops or circumstances change. If such an obligation is not capable of being reliably estimated, or if a material outflow of economic resources is considered remote, it is classified as a contingent liability. Any potential liability is not expected to have a material adverse effect on the Group's financial position.

Tax contingent liabilities

The Group is subject to periodic tax audits by various fiscal authorities covering corporate, employee and sales taxes in the various jurisdictions in which it operates, estimates of likely exposures are in Notes 8 and 13.

Future changes in legislation, regulation or interpretation could increase the Group's taxes and have an adverse effect of the Group's operating results and financial condition.

23. Operating leases

Accounting policies

Operating lease payments

Payments made under operating leases are recognised in the income statement on a straight-line basis over the term of the lease. Lease incentives received are recognised in the income statement as an integral part of the total lease expense.

Leases as lessee

Non-cancellable operating lease rentals are payable as follows:

	2017 £m	2016 £m
Less than one year	**10.4**	9.4
Between one and five years	**26.9**	25.2
More than five years	**30.4**	29.6
	67.7	64.2

The Group leases a number of properties under operating leases of varying duration. In some cases, during the life of the lease, the rental payable is reviewed after a fixed period to reflect market rentals.

Leases as lessor

In 2017 the total of future minimum sub-lease income under non-cancellable sub-leases is £nil million (2016: £nil million).

24. Capital commitments

In 2017 commitments for property, plant and equipment and computer software expenditure for which no provision has been made in these accounts amount to £2.8 million (2016: £4.4 million) for the Group.

25. Related parties

Identification of related parties

The Group has related party relationships with its subsidiaries (a list of all related undertakings is shown in note 44), with its associates (see note 12) and with its Directors and executive officers.

Transactions with key management personnel

The Company has written service contracts or letters of appointment with each of its Directors, under which the Directors receive a salary or a fee and other emoluments.

The key management of the Group and parent Company consists of the Board of Directors (including non-executive Directors) and members of the Executive Committee.

The compensation for the executive and non-executive Directors and members of the Executive Committee charged in the year was:

	2017 £m	2016 £m
Short-term employee benefits	**4.9**	3.6
Employer national insurance contributions	**0.7**	0.6
Pension and other post-employment costs	**0.5**	0.5
Share-based payments	**0.9**	0.5
Termination payments	**0.8**	1.0
Non-executive Directors' fees and benefits	**0.4**	0.4
Total compensation of key management personnel	**8.2**	6.6

Notes to the consolidated financial statements continued

25. Related parties continued

Other related party transactions

	2017 £m	2016 £m
Sales to associate	–	–
Purchases from associate	1.3	1.4
Loan made to associate	–	–
Trade receivables due from associate	–	–
Trade payables due to associate	0.3	0.2

The balances with the Group's associate are shown in note 15 and note 17. In 2017 the Group does not have any trade receivables owed by associates that have been fully provided for (2016: £nil).

26. Subsequent events

Since the balance sheet date, there have been no material subsequent events.

Company Balance Sheet

as at 31 December 2017

	Note	2017 £m	2016 £m
Non-current assets			
Intangible assets	29	3.9	0.8
Property, plant and equipment	30	13.1	12.8
Investments in subsidiary undertakings	31	1,073.6	762.3
		1,090.6	775.9
Current assets			
Debtors – amounts due within one year	32	62.3	54.2
Cash and cash equivalents		4.8	65.7
		67.1	119.9
Creditors – amounts falling due within one year	33	78.3	69.2
Net current assets/(liabilities)		(11.2)	50.7
Total assets less current liabilities		1,079.4	826.6
Non-current liabilities			
Creditors – amounts falling due after more than one year	34	391.1	223.2
Employee benefits: pensions	36	46.1	51.0
Provisions	37	0.6	0.6
		437.8	274.8
Net assets		641.6	551.8
Capital and reserves			
Equity shareholders' funds			
Share capital	38	71.4	71.4
Share premium	39	111.7	111.7
Merger reserve	39	17.0	17.0
Capital redemption reserve	39	35.7	35.7
Retained earnings	39	405.4	315.6
		641.2	551.4
Non-equity shareholders' funds			
Share capital	38	0.4	0.4
Shareholders' funds		641.6	551.8

The financial statements were approved by the Board of Directors on 27 February 2018 and were signed on its behalf by:

Pete Raby
Chief Executive Officer

Peter Turner
Chief Financial Officer

Company Statement of Changes in Equity

for the year ended 31 December 2017

	Called-up share capital £m	Share premium account £m	Merger reserve £m	Capital redemption reserve £m	Profit and loss account £m	Total equity £m
Balance at 1 January 2016	71.4	111.7	17.0	35.7	253.1	488.9
Total comprehensive income for the period						
Profit for the year	–	–	–	–	28.6	28.6
Other comprehensive income	–	–	–	–	64.5	64.5
Transactions with owners:						
Dividends	–	–	–	–	(31.2)	(31.2)
Equity-settled share-based payment transactions	–	–	–	–	0.8	0.8
Own shares acquired for share incentive schemes	–	–	–	–	(0.2)	(0.2)
Balance at 31 December 2016	71.4	111.7	17.0	35.7	315.6	551.4
Balance at 1 January 2017	71.4	111.7	17.0	35.7	315.6	551.4
Total comprehensive income for the period						
Profit for the year	–	–	–	–	117.1	117.2
Other comprehensive income	–	–	–	–	2.8	2.8
Transactions with owners:						
Dividends	–	–	–	–	(31.4)	(31.4)
Equity-settled share-based payment transactions	–	–	–	–	1.7	1.7
Own shares acquired for share incentive schemes	–	–	–	–	(0.4)	(0.4)
Balance at 31 December 2017	71.4	111.7	17.0	35.7	405.4	641.2

Notes to the Company balance sheet

27. Accounting policies

Basis of preparation

These financial statements were prepared in accordance with Financial Reporting Standard 101 *Reduced Disclosure Framework ('FRS 101')*.

In preparing these financial statements, the Company applies the recognition, measurement and disclosure requirements of International Financial Reporting Standards as adopted by the EU ('Adopted IFRSs'), but makes amendments where necessary in order to comply with the Companies Act 2006 and has set out below where advantage of the FRS 101 disclosure exemptions has been taken.

Under Section 408(4) of the Companies Act 2006 the Company is exempt from the requirement to present its own profit and loss account.

In these financial statements, the Company has applied the exemptions available under FRS 101 in respect of the following disclosures:

- a cash flow statement and related notes
- comparative period reconciliations for share capital, tangible fixed assets and intangible assets
- transactions with wholly owned subsidiaries
- the effects of new but not yet effective IFRSs
- the compensation of key management personnel
- capital management

As the consolidated financial statements of Morgan Advanced Materials plc include the equivalent disclosures, the Company has also taken the exemptions under FRS 101 available in respect of the following disclosures:

- *IFRS 2 Share-Based Payments* in respect of Group-settled share-based payments; and
- the disclosures required by *IFRS 7 Financial Instruments Disclosures*.

The Company proposes to continue to adopt the reduced disclosure framework of FRS 101 in its next financial statements.

The accounting policies set out below have, unless otherwise stated, been applied consistently to the period presented in these financial statements.

Measurement convention

The financial statements are prepared on the historical cost basis except that the following assets and liabilities are stated at their fair value – financial instruments classified as fair value through the profit or loss.

Intangible assets

Intangible assets that are acquired by the Company are stated at cost less accumulated amortisation and less accumulated impairment losses.

Amortisation

Amortisation is charged to the income statement on a straight-line basis over the estimated useful lives of intangible assets unless such lives are indefinite. Intangible assets with an indefinite useful life and goodwill are systematically tested for impairment at each balance sheet date. Other intangible assets are amortised from the date they are available for use. The estimated useful lives are as follows:

- software: 3-7 years

Property, plant and equipment

Property, plant and equipment is stated at cost less accumulated depreciation and accumulated impairment losses.

Depreciation is charged to the income statement on a straight-line basis over the estimated useful lives of each part of an item of tangible fixed assets. Land is not depreciated. The estimated useful lives are as follows:

- plant, equipment and fixtures: 3-20 years
- buildings: 50 years

Depreciation methods, useful lives and residual values are reviewed at each balance sheet date.

Foreign currency

Transactions in foreign currencies are translated to the Company's functional currencies at the foreign exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the balance sheet date are retranslated to the functional currency at the foreign exchange rate ruling at that date. Foreign exchange differences arising on translation are recognised in the income statement except for differences arising on the retranslation of qualifying cash flow hedges, which are recognised in other comprehensive income. Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction. Non-monetary assets and liabilities denominated in foreign currencies that are stated at fair value are retranslated to the functional currency at foreign exchange rates ruling at the dates the fair value was determined.

Notes to the Company balance sheet continued

27. Accounting policies continued

Expenses

Operating lease payments

Payments made under operating leases are recognised in the income statement on a straight-line basis over the term of the lease. Lease incentives received are recognised in the income statement as an integral part of the total lease expense.

Taxation

Tax on the profit or loss for the year comprises current and deferred tax. Tax is recognised in the income statement except to the extent that it relates to items recognised directly in equity or other comprehensive income, in which case it is recognised directly in equity or other comprehensive income.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.

Deferred tax is provided on temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. The following temporary differences are not provided for: the initial recognition of goodwill; the initial recognition of assets or liabilities that affect neither accounting nor taxable profit other than in a business combination; and differences relating to investments in subsidiaries to the extent that they will probably not reverse in the foreseeable future. The amount of deferred tax provided is based on the expected manner of realisation or settlement of the carrying amount of assets and liabilities, using tax rates enacted or substantively enacted at the balance sheet date.

A deferred tax asset is recognised only to the extent that it is probable that future taxable profits will be available against which the temporary difference can be utilised.

Classification of financial instruments issued by the Company

Financial instruments issued by the Company are treated as equity only to the extent that they meet the following two conditions:

(a) they include no contractual obligations upon the Company to deliver cash or other financial assets or to exchange financial assets or financial liabilities with another party under conditions that are potentially unfavourable to the Company; and

(b) where the instrument will or may be settled in the Company's own equity instruments, it is either a non-derivative that includes no obligation to deliver a variable number of the Company's own equity instruments or is a derivative that will be settled by the Company's exchanging a fixed amount of cash or other financial assets for a fixed number of its own equity instruments.

To the extent that this definition is not met, the proceeds of issue are classified as a financial liability. Where the instrument so classified takes the legal form of the Company's own shares, the amounts presented in these financial statements for called-up share capital and share premium account exclude amounts in relation to those shares.

Non-derivative financial instruments

Non-derivative financial instruments comprise investments in equity and debt securities, trade and other debtors, cash and cash equivalents, loans and borrowings, and trade and other creditors.

Trade and other debtors

Trade and other debtors are recognised initially at fair value. Subsequent to initial recognition they are measured at amortised cost using the effective interest method, less any impairment losses.

Trade and other creditors

Trade and other creditors are recognised initially at fair value. Subsequent to initial recognition they are measured at amortised cost using the effective interest method.

Investments in debt and equity securities

Investments in debt and equity securities held by the Company are classified as being available for sale and are stated at fair value, with any resultant gain or loss being recognised directly in equity (in the fair value reserve), except for impairment losses and, in the case of monetary items such as debt securities, foreign exchange gains and losses. When these investments are derecognised, the cumulative gain or loss previously recognised directly in equity is recognised in profit or loss. Where these investments are interest-bearing, interest calculated using the effective interest method is recognised in profit or loss. Investments in subsidiaries are carried at cost less impairment.

Interest-bearing borrowings

Interest-bearing borrowings (which include amounts owed to/by Group undertakings) are recognised initially at fair value less attributable transaction costs. Subsequent to initial recognition, interest-bearing borrowings are stated at amortised cost using the effective interest method, less any impairment losses.

27. Accounting policies continued

Derivative financial instruments and hedging

Derivative financial instruments

Derivative financial instruments are recognised at fair value. The gain or loss on remeasurement to fair value is recognised immediately in profit or loss. However, where derivatives qualify for hedge accounting, recognition of any resultant gain or loss depends on the nature of the item being hedged (see below).

Cash flow hedges

Where a derivative financial instrument is designated as a hedge of the variability in cash flows of a recognised asset or liability, or a highly probable forecast transaction, the effective part of any gain or loss on the derivative financial instrument is recognised directly in the hedging reserve. Any ineffective portion of the hedge is recognised immediately in the income statement.

Fair value hedges

Where a derivative financial instrument is designated as a hedge of the variability in fair value of a recognised asset or liability or an unrecognised firm commitment, all changes in the fair value of the derivative are recognised immediately in the income statement. The carrying value of the hedged item is adjusted by the change in fair value that is attributable to the risk being hedged (even if it is normally carried at cost or amortised cost) and any gains or losses on remeasurement are recognised immediately in the income statement (even if those gains would normally be recognised directly in reserves).

Employee benefits

Defined contribution plans

A defined contribution plan is a post-employment benefit plan under which the Company pays fixed contributions into a separate entity and will have no legal or constructive obligation to pay further amounts. Obligations for contributions to defined contribution pension plans are recognised as an expense in the income statement in the periods during which services are rendered by employees.

Defined benefit plans

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Company's net obligation in respect of defined benefit pension plans and other post-employment benefits is calculated separately for each plan by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value, and the fair value of any plan assets (at bid price) and any unrecognised past service costs are deducted. The liability discount rate is the yield at the balance sheet date on AA-credit-rated bonds denominated in the currency of, and having maturity dates approximating to the terms of the Company's obligations. The calculation is performed by a qualified actuary using the projected unit credit method. When the calculation results in a benefit to the Company, the recognised asset is limited to the total of any unrecognised past service costs and the present value of benefits available in the form of any future refunds from the plan, reductions in future contributions to the plan or on settlement of the plan and takes into account the adverse effect of any minimum funding requirements.

Actuarial gains and losses that have arisen since the adoption of FRS 101 are recognised in the period that they occur directly into equity through the statement of comprehensive income.

The Company is the sponsoring and principal employer of two UK defined benefit pension Schemes, the Morgan Pension Scheme and the Morgan Group Senior Staff Pension and Life Assurance Scheme ('the UK Schemes'). The Company also guarantees certain obligations and liabilities to the employees that currently participate in the two UK Schemes.

During 2016 the Company adopted a new policy to allocate costs associated with the UK pension schemes between itself, as Principal Employer, and the various Participating Employers, based on an evaluation of each entity's share of overall Scheme liabilities. This ensures that the pension liability is reflected in the entity that employed the participant. This resulted in a reallocation of £151.5 million of the Schemes' net liabilities to the Participating Employers. Previously all of the Scheme assets and liabilities were recognised on the balance sheet of the Company only. Further details are provided in note 36.

Share-based payment transactions

Share-based payment arrangements in which the Company receives goods or services as consideration for its own equity instruments are accounted for as equity-settled share-based payment transactions, regardless of how the equity instruments are obtained by the Company.

The grant date fair value of share-based payments awards granted to employees is recognised as an employee expense, with a corresponding increase in equity, over the period in which the employees become unconditionally entitled to the awards. The fair value of the awards granted is measured using an option valuation model, taking into account the terms and conditions upon which the awards were granted. The amount recognised as an expense is adjusted to reflect the actual number of awards for which the related service and non-market vesting conditions are expected to be met, such that the amount ultimately recognised as an expense is based on the number of awards that do meet the related service and non-market performance conditions at the vesting date. For share-based payment awards with non-vesting conditions, the grant date fair value of the share-based payment is measured to reflect such conditions and there is no true-up for differences between expected and actual outcomes.

Notes to the Company balance sheet
continued

27. Accounting policies continued

Share-based payment transactions in which the Company receives goods or services by incurring a liability to transfer cash or other assets that is based on the price of the Company's equity instruments are accounted for as cash-settled share-based payments. The fair value of the amount payable to employees is recognised as an expense, with a corresponding increase in liabilities, over the period in which the employees become unconditionally entitled to payment. The liability is remeasured at each balance sheet date and at settlement date. Any changes in the fair value of the liability are recognised as personnel expense in profit or loss.

Own shares held by The Morgan General Employee Benefit Trust

Transactions of the Group-sponsored Morgan General Employee Benefit Trust are treated as being those of the Company and are therefore reflected in the Company's financial statements. In particular, the Trust's purchases and sales of shares in the Company are debited and credited to equity.

Provisions

A provision is recognised in the balance sheet when the Company has a present legal or constructive obligation as a result of a past event that can be reliably measured, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects risks specific to the liability.

Investments

Investments in subsidiary undertakings, associates and joint ventures are stated at cost less amounts written off unless they are designated as a hedged item in a fair value hedge of foreign currency risk. In this case they are accounted for at historical cost plus a hedging adjustment recognised in profit or loss for the changes in their fair value attributable to the foreign currency exposure from the date the hedge is designated.

Interest-bearing loans and borrowings

Immediately after issue, debt is stated at the fair value of the consideration received. Immediately after issue capital instruments are stated after deduction of issue costs. The finance cost of the debt is allocated to periods over the term of the debt at a constant rate on the carrying amount.

Dividends on shares presented within shareholders' funds

Dividends unpaid at the balance sheet date are only recognised as a liability at that date to the extent that they are appropriately approved and are no longer at the discretion of the Company. Unpaid dividends that do not meet these criteria are disclosed in the notes to the financial statements.

Financial guarantee contracts

Where the Company enters into financial guarantee contracts to guarantee the indebtedness of other companies within its Group, the Company considers these to be insurance arrangements, and accounts for them as such. In this respect, the Company treats the guarantee contract as a contingent liability until such time as it becomes probable that the Company will be required to make a payment under the guarantee, at which point a liability would be recognised.

28. Staff numbers and costs

The average number of persons employed by the Company (including Directors) during the year was as follows:

	Number of employees	
	2017	2016
Directors and corporate staff	51	48

Full details of the Directors' remuneration for the period can be found in the Remuneration Report on pages 70 to 89.

Aggregate employee-related costs were as follows:

	Note	2017 £m	2016 £m
Wages and salaries		8.8	8.0
Equity-settled share-based payments	21	1.7	0.8
Social security costs		0.7	0.9
Other pension costs		0.3	0.5
		11.5	10.2

In 2017 £0.5 million (2016: £0.4 million) of the equity-settled share-based payments amount was recharged to other Morgan Group companies.

29. Intangible assets

	Software £m
Cost	
Balance at 1 January 2017	4.6
Additions – externally purchased	4.7
Balance at 31 December 2017	**9.3**
Amortisation	
Balance at 1 January 2017	3.8
Amortisation for the year	1.6
Balance at 31 December 2017	**5.4**
Carrying amounts	
At 31 December 2016	0.8
At 31 December 2017	**3.9**

30. Property, plant and equipment

	Plant, equipment and fixtures £m	Land and buildings £m	Total £m
Cost			
Balance at 1 January 2017	1.1	12.8	13.9
Additions	–	0.3	0.3
Balance at 31 December 2017	**1.1**	**13.1**	**14.2**
Depreciation			
Balance at 1 January 2017	1.1	–	1.1
Depreciation charge for the year	–	–	–
Balance at 31 December 2017	**1.1**	**–**	**1.1**
Carrying value			
At 31 December 2016	–	12.8	12.8
At 31 December 2017	**–**	**13.1**	**13.1**

Notes to the Company balance sheet
continued

31. Investment in subsidiary undertakings

	Shares in Group undertakings £m	Loans £m	Total £m
Cost			
Balance at 1 January 2017	514.5	462.6	977.1
Additions	68.0	400.0	468.0
Fair value hedge of investments' exposure to foreign currency risk	(0.8)	–	(0.8)
Disposals	(77.5)	–	(77.5)
Loan repayments	–	(71.3)	(71.3)
Effect of movement in foreign exchange	–	(10.3)	(10.3)
Balance at 31 December 2017	**504.2**	**781.0**	**1,285.2**
Provisions			
Balance at 1 January 2017	158.8	56.0	214.8
Provided in the year	–	–	–
Disposals	(3.2)	(0.4)	(3.6)
Effect of movement in foreign exchange	–	0.4	0.4
Balance at 31 December 2017	**155.6**	**56.0**	**211.6**
Carrying amounts			
At 31 December 2016	355.7	406.6	762.3
At 31 December 2017	**348.6**	**725.0**	**1,073.6**

Note 42 to the financial statements gives details of the Company's fixed asset investments.

32. Debtors

	Note	2017 £m	2016 £m
Amounts owed by Group undertakings		**43.1**	40.6
Other debtors		**1.7**	4.5
Derivative financial assets	43	**16.7**	8.6
Prepayments and accrued income		**0.8**	0.5
Due within one year		**62.3**	54.2

33. Creditors: amounts falling due within one year

	Note	2017 £m	2016 £m
Bank overdrafts	35	**17.6**	15.0
Bank and other loans	35	**31.6**	17.3
Trade creditors		**5.1**	2.1
Amounts owed to Group undertakings		**12.0**	14.5
Other creditors, including deferred consideration		**3.8**	1.0
Accruals and deferred income		**6.8**	7.9
Derivative financial liabilities	43	**1.4**	11.4
		78.3	69.2

34. Creditors: amounts falling due after more than one year

	Note	2017 £m	2016 £m
Amounts payable to Group undertakings		254.0	80.0
Bank and other loans	35	136.3	142.5
Other creditors		–	–
Derivative financial liabilities		0.8	0.7
		391.1	223.2

35. Borrowings

	Note	2017 £m	2016 £m
Creditors: amounts falling due within one year:			
Bank overdrafts	33	17.6	15.0
Bank and other loans	33	31.6	17.3
Creditors: amounts falling due after more than one year:			
Bank and other loans	34	136.3	142.5
		185.5	174.8

Terms and debt repayment schedule

	Currency	Effective interest rate	Year of maturity	Carrying amount 2017 £m	Fair value 2017 £m	Carrying amount 2016 £m	Fair value 2016 £m
Bank overdrafts	Various	1.95%		17.6	17.6	15.0	15.0
4.32% Euro Senior Notes 2017	EUR	4.32%	2017	–	–	17.3	17.5
1.18% Euro Senior Notes 2023	EUR	1.18%	2023	22.2	21.8	21.3	21.0
3.17% US Dollar Senior Notes 2023	USD	3.17%	2023	11.2	10.7	12.2	11.7
1.55% Euro Senior Notes 2026	EUR	1.55%	2026	22.3	21.5	21.4	20.8
3.37% US Dollar Senior Notes 2026	USD	3.37%	2026	72.1	67.4	79.0	73.1
1.74% Euro Senior Notes 2028	EUR	1.74%	2028	8.9	8.5	8.6	8.3
Syndicated revolving credit facility	GBP	1.15%	2019	4.6	4.6	–	–
Syndicated revolving credit facility	USD	2.15%	2019	26.6	26.6	–	–
				185.5	178.7	174.8	167.4

In 2017 bank and other loans did not include any loans secured on the assets of the Company (2016: £nil).

36. Employee benefits: pensions

The Morgan Pension Scheme and the Morgan Group Senior Staff Pension and Life Assurance Scheme

The Company participates in two defined benefit schemes in the UK. The assets of these schemes are held in separate trustee-administered funds, The Morgan Pension Scheme and the Morgan Group Senior Staff Pension and Life Assurance Scheme. These schemes were closed to new entrants on 1 August 2011, with any new employees receiving benefits through the Morgan Group Personal Pension Plan, a defined contribution arrangement. The Morgan Group Senior Staff Pension and Life Assurance Scheme was closed to the future accrual of benefits on and with effect from 6 April 2016. Employees active in the Scheme as at that date were enrolled in the Morgan Group Personal Pension Plan, with the option to opt out under relevant UK legislation. Following a consultation exercise with the remaining active members of the Morgan Pension Scheme in May and June 2017, the Trustee of the Scheme agreed to a Company proposal to close the Scheme to the future accrual of benefits with effect from 6 April 2018. Again employees active in the Scheme at that date will be auto-enrolled into the Morgan Group Personal Pension Plan for their future pension benefits.

Notes to the Company balance sheet continued

36. Employee benefits: pensions continued

During 2016 the Company adopted a new policy to allocate costs associated with the UK pension schemes between itself, as Principal Employer, and the various Participating Employers, based on an evaluation of each entity's share of overall Scheme liabilities. This ensures that the pension liability is reflected in the entity that employed the participant. This resulted in a reallocation of £151.5 million of the Schemes' net liabilities to the Participating Employers. Previously all of the Scheme assets and liabilities were recognised on the balance sheet of the Company only.

	2017 £m	2016 £m
Pension plans and employee benefits		
Present value of funded defined benefit obligations	(194.6)	(194.4)
Fair value of plan assets	148.5	143.4
Net obligations	(46.1)	(51.0)
Movements in present value of defined benefit obligation		
At 1 January	(194.4)	(500.9)
Reallocation of defined benefit obligation	–	423.9
Current service cost	(0.1)	(1.4)
Interest cost	(5.0)	(15.1)
Remeasurement (losses)/gains:		
Changes in financial assumptions	(5.3)	(32.3)
Changes in demographic assumptions	3.1	2.4
Experience adjustments on benefit obligations	(0.9)	(87.1)
Benefits paid	8.0	16.2
Contributions by members	–	(0.1)
At 31 December	(194.6)	(194.4)
Movements in fair value of plan assets		
At 1 January	143.4	383.5
Reallocation of fair value of plan assets	–	(272.4)
Interest on plan assets	3.7	11.7
Remeasurement gains/(losses)	5.9	30.0
Contributions by employer	3.6	7.4
Contributions by members	–	0.1
Benefits paid	(8.0)	(16.2)
Administrative expenses	(0.1)	(0.7)
At 31 December	148.5	143.4
Actual return on assets	9.6	41.7
Pension plans and employee benefits		
Expense recognised in the consolidated income statement		
Current service cost	(0.1)	(1.4)
Administrative expenses (including administration expenses incurred by the Company directly)	(0.2)	(0.7)
Net interest on net defined benefit liability	(1.3)	(3.4)
Total expense	(1.6)	(5.5)

The fair values of the plan assets were as follows:

	£m	£m
Equities and growth assets	40.6	47.9
Bonds	26.9	13.5
Matching insurance policies	75.8	78.4
Other	5.2	3.6
Total	148.5	143.4

The assumptions used are best estimate assumptions chosen from a range of possible actuarial assumptions which may not be borne out in practice. The principal assumptions are the discount rate and inflation assumptions which are long-term and measured on external factors, based upon each plan's duration. In addition to these, the mortality assumption in the UK is material to the cost of the promised benefits. The assumed increases in salaries and pensions in payment are derived from assumed future inflation.

36. Employee benefits: pensions continued

Principal actuarial assumptions at the year end were as follows:

Assumptions:	2017 %	2016 %
Inflation (RPI & CPI)	3.12/2.02	3.20/2.10
Discount rate	2.38	2.62
Pensions increase	3.00/3.00/3.60	3.00/3.10/3.70
Salary increase	n/a	n/a
Mortality – post-retirement:		
Life expectancy of a male aged 60 in accounting year	26.6 years	26.8 years
Life expectancy of a male aged 60 in accounting year + 20	28.2 years	28.7 years

History of the plans

The history of the plans is as follows:

Balance sheet	2017 £m	2016 £m
Present value of the defined benefit obligation	(194.6)	(194.4)
Fair value of plan assets	148.5	143.4
Deficit	(46.1)	(51.0)

Funding

The most recent full actuarial valuations of the UK Schemes were undertaken as at March 2016 and resulted in combined assessed deficits of £132 million. On the basis of these full valuations, the Trustees of the UK Schemes, having consulted with the Group, agreed past service deficit recovery payments totalling £12 million a year from April 2017 (Company: £3.6 million in 2017), increasing by 2.75% pa until 2025, with further payments to the Morgan Pension Scheme for 2026 and 2027 and contributions in respect of future service as accrued. New full valuations are due with effective dates of March 2019 and the outcome of those consultations will determine the Group's future contribution requirements, with any new deficit arising needing to be met through the payment of additional contributions.

Sensitivity analysis

The sensitivities of the Company's net balance sheet to the principal assumptions are:

	Change in assumption	2017 Increase effect £m	2016 Increase effect £m
Discount rate	Decrease by 0.1%	2.4	2.4
Inflation	Increase by 0.1%	1.1	1.1
Mortality – post-retirement	Pensioners live 1 year longer	4.7	5.1

These sensitivities have been calculated to show the movement in the net balance sheet in isolation, and assuming no other changes in market conditions at the accounting date (except where a fully matching insurance policy is held where this asset is assumed to change in value to match the change in obligations). This is unlikely in practice, for example, a change in discount rate is unlikely to occur without any movement in the value of the assets held by the Company's schemes.

Defined contribution plans

The Group operates a defined contribution pension plan ('the Morgan Group Personal Pension Plan'). The total Company expense relating to this plan in 2017 was £0.1 million (2016: £0.1 million).

Notes to the Company balance sheet
continued

37. Provisions and contingent liabilities

	Dilapidation provisions £m	Other provisions £m	Total £m
Balance at 31 December 2016	0.1	0.5	0.6
Provisions made during the year	–	–	–
Provisions used during the year	–	–	–
Balance at 31 December 2017	**0.1**	**0.5**	**0.6**

Dilapidation provisions are based on the Company's commitments at the balance sheet date.

Other provisions relate to legal claims and are based on the Company's assessment of the probable cost of these activities.

Contingent liabilities

Where the Company enters into financial guarantee contracts to guarantee the indebtedness of other companies within its Group, the Company considers these to be insurance arrangements, and accounts for them as such. In this respect, the Company treats the guarantee contract as a contingent liability until such time as it becomes probable that the Company will be required to make a payment under the guarantee, at which point a liability would be recognised.

The Group has been subject to legal claims in a number of countries. In some cases it will not be possible to form a view, either because the facts are unclear or because further time is needed to properly assess the merits of the case, and no provisions are held against such cases. The Board, having taken legal advice, is of the opinion that the remainder of these actions will not have a material impact on the Company's financial position.

There are no other contingent liabilities in the Company as at 31 December 2017.

38. Share capital

	5.5% Cumulative First Preference shares 2017	5.0% Cumulative Second Preference shares 2017	Ordinary shares 2017
In thousands of shares			
In issue at 1 January 2017	**125**	**312**	**285,370**
In issue at 31 December 2017	**125**	**312**	**285,370**

	2017 £m	2016 £m
Allotted, called up and fully paid		
Ordinary shares of 25 pence each	**71.4**	71.4
5.5% Cumulative First Preference shares of £1 each	**0.1**	0.1
5.0% Cumulative Second Preference shares of £1 each	**0.3**	0.3
	71.8	71.8
Shares classified as equity shareholders' funds	**71.4**	71.4
Shares classified as non-equity shareholders' funds	**0.4**	0.4
	71.8	71.8

Refer to note 18 for details of the rights to dividends, voting rights and return of capital relating to the Preference shares.

Dividends payable for the First and Second Preference shares were £22,491 (2016: £22,491).

The 5.5% Cumulative First Preference shares of £1 each and the 5.0% Cumulative Second Preference shares of £1 each confer on the holders thereof the right to receive a cumulative preferential dividend at the rate of 5.5% and 5.0% respectively, calculated up to 30 June and 31 December respectively in every year.

For proposed Ordinary dividends see the consolidated income statement on page 100.

39. Share premium and reserves

	Note	Share premium £m	Merger reserve £m	Capital redemption reserve £m	Profit and loss account £m
At 1 January 2017		111.7	17.0	35.7	315.6
Equity-settled share-based payment transactions		–	–	–	1.7
Dividends		–	–	–	(31.4)
Own shares acquired for share incentive schemes		–	–	–	(0.4)
Remeasurement loss on defined benefit plans	36	–	–	–	2.8
Retained profit for the year		–	–	–	117.1
At 31 December 2017		**111.7**	**17.0**	**35.7**	**405.4**

The merger reserve comprises the balance associated with the premium of shares issued during previous acquisitions. Further details on share premium and reserves are given in note 18.

Capita Trustees Limited administer a Trust in which shares are held to satisfy awards granted under the Company's share plans. The shares are distributed via discretionary settlement governed by the rules of the Trust deed dated 1 March 1996 (as amended).

The total number of own shares held by the Trust at 31 December 2017 was 216,456 (2016: 623,127) and at that date had a market value of £0.7 million (2016: £1.8 million).

In 2017, the amount of reserves of Morgan Advanced Materials plc that may be distributed under Section 831(4) of the Companies Act 2006 was £208.0 million (2016: £118.0 million). This comprises a portion of the profit and loss account.

40. Operating leases

Non-cancellable operating lease rentals are payable as follows:

	Land and buildings	
	2017 £m	2016 £m
Less than one year	**0.2**	0.2
Between one and five years	**0.4**	–
	0.6	0.2

In 2017 £0.2 million (2016: £0.2 million) was recognised as an expense in the income statement in respect of operating leases.

41. Related parties

The Company has related party relationships with its subsidiaries, its associates and its Directors and executive officers. It is exempt from providing information relating to these parties with the exception of transactions with its associate.

At 31 December 2017 there were no outstanding balances payable to or receivable from the associate (2016: £nil).

Notes to the Company balance sheet
continued

42. Fixed asset investments

In accordance with Section 409 of the Companies Act 2006, a full list of related undertakings as at 31 December 2017 is disclosed below. Related undertakings include subsidiary undertakings, all significant holdings (being 20% or more interest), associated undertakings, joint ventures and qualifying partnerships. Unless otherwise stated the Group's shareholding represents Ordinary shares held indirectly by the Company.

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Carbo San Luis S.A.[11]	Argentina	Talcahuano 736, 4th Floor, Buenos Aires, C1013AAP, Argentina	84.61%
Morgan Technical Ceramics Australia Pty Ltd	Australia	4 Redwood Drive, Clayton VIC 3168, Australia	100.00%
Morganite Australia Pty Ltd[18]	Australia	Unit 4, 92-100 Belmore Road, Riverwood NSW 2210, Australia	100.00%
D Brown Carbon (Pty) Ltd	Australia	Unit 4, 92-100 Belmore Road, Riverwood NSW 2210, Australia	100.00%
Morgan Mechanical Carbon Australasia Pty Ltd[1]	Australia	Unit 4, 92-100 Belmore Road, Riverwood NSW 2210, Australia	100.00%
Morganite Brasil Ltda[22]	Brazil	Avenida do Taboao 3265, Taboao, Sao Bernardo do Campo, Sao Paulo, CEP 09656-000, Brazil	100.00%
Morgan Advanced Materials Canada Inc.[15]	Canada	1185 Walkers Line, Burlington ON L7M 1L1, Canada	100.00%
NP Aerospace (Canada) Ltd[14]	Canada	1185 Walkers Line, Burlington ON L7M 1L1, Canada	100.00%
Carbo Chile SA	Chile	Avenida San Eugenio 12462, Sitio 3, Loteo Estrella del Sur, Santiago, Chile	99.99%
Dalian Morgan Ceramics Company Ltd[23]	China	Zhenxing Road, Pulandian Economic Development Zone, Dalian, Liaoning Province, 116200, China	100.00%
Morgan Guangzhou Co Ltd	China	2F Guangye Building, No. 5, No. 3 Minghua Street, Jinxiu Rd. Guangzhou Economic & Technological Development District, Guangdong, 510730, China	100.00%
Morgan Haldenwanger Technical Ceramics (Wuxi) Co. Ltd[23]	China	Dingshu, Yixing City, Jiangsu, 214221, China	100.00%
Morgan Molten Metal Systems (Suzhou) Co. Ltd[1,19]	China	No. 108 Tongsheng Rd, Shengpu Town, Suzhou Industrial Park, Suzhou, China	100.00%
Morgan Technical Ceramics (Suzhou) Co. Ltd	China	Room #101, Building #4, No. 188 Jialing Jiang Road, Suzhou New District, Suzhou, Jiangsu Province, China	100.00%
Morgan Thermal Ceramics(Shanghai) Co., Ltd[1,23]	China	No. 18, Kang An Road, Kangqiao Industrial Zone, Pudong, Shanghai, China	100.00%
Morgan International Trading (Shanghai) Co. Ltd[1,23]	China	Room 6015, 6F Great Wall Building, No.333 Futexiyi Road, Free Trade Zone, Shanghai, China	100.00%
Shanghai Morgan Advanced Material and Technology Co Ltd[1,19]	China	4250 Long Wu Road, Shanghai, 200241, China	100.00%
Jiangsu Morgan Ceramic Core Technology Co., Ltd[22]	China	No. 2 Li Ye Road Binhu District WuXi 214131, China	58.00%
Beijing Morgan Ceramics Co., Ltd[23]	China	Room 601, 6F, Building 17, No.A1 Chaoqian Rd, Changping District, Beijing, 102200, China	100.00%
Morgan AM&T (Shanghai) Co., Ltd[5,22]	China	4250 Long Wu Road, Shanghai, 200241, China	70.00%
Morgan Kailong (Jingmen) Thermal Ceramics Co. Ltd[5,23]	China	20-1# Quankou Road, Jingmen City, 448032 Hubei Province, China	70.00%
Dalian Morgan Refractories Ltd[5,23]	China	Zhenxing Road, Pulandian Economic Development Zone, Dalian, Liaoning Province, 116200, China	70.00%
Yixing Morgan Thermal Ceramics Co Ltd[6,23]	China	No. 2 Beidan Road, Taodu Industry Park, Dingshu Town, Yixing City, Jiangsu Province 214222, China	51.00%
Thermal Ceramics de Colombia[9]	Colombia	Calle 18 No 23-31 Bodega 1, Guadalajara de Buga-Valle, AA 5086, Colombia	100.00%
Morgan Carbon France SA	France	6 rue du Reservoir, 68420 Eguisheim, France	100.00%
Thermal Ceramics de France S.A.S.U[19]	France	Centre de Vie BP 75, 3 rue du 18 Juin 1827, 42162 Andrézieux-Boutheon, France	100.00%
Marshall Morganite S.A.	France	5 bis rue Retrou, 92600 Asnières-sur-Seine, France	99.88%
Thermal Ceramics S.A.[10,19]	France	Centre de Vie BP 75, 3 rue du 18 Juin 1827, 42162 Andrézieux-Boutheon, France	100.00%
Morgan Advanced Materials Haldenwanger GmbH[20]	Germany	Teplitzerstr. 27, 84478, Waldkraiburg, Germany	100.00%

42. Fixed asset investments continued

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Morgan Electrical Carbon Deutschland GmbH	Germany	Zeppelinstrasse 26, 53424 Remagen, Germany	100.00%
Morgan Thermal Ceramics Deutschland GmbH	Germany	Borsigstrasse 4-6, 21465, Reinbek, Germany	100.00%
Morgan Molten Metal Systems GmbH	Germany	Noltinastrasse 29, 37297, Berkatal-Frankenhain, Germany	100.00%
Morgan Rekofa GmbH	Germany	Bergstrasse 41, 53533, Antweiler, Germany	100.00%
Morgan Deutschland Holding GmbH	Germany	Zeppelinstrasse 26, 53424, Remagen, Germany	100.00%
Porextherm Dämmstoffe GmbH	Germany	Heisingsrtrasse 8/10, 87437, Kempten (Allgäu), Germany	100.00%
Morgan Holding GmbH	Germany	Zeppelinstrasse 26, 53424, Remagen, Germany	100.00%
The Morgan Crucible Management GmbH	Germany	Zeppelinstrasse 26, 53424, Remagen, Germany	100.00%
Wesgo Ceramics GmbH	Germany	Willi-Grasser-Strasse 11, 91056, Erlangen, Germany	100.00%
Ceramicas Termicas SA	Guatemala	20 cale 18-60 Apartamento 2, Zona 10, Guatemala City, Guatemala	100.00%
Refractarios Multiples SA	Guatemala	Km. 34.5 Carretera al Pacífico, Palín, Escuintla, Guatemala	100.00%
Refractarios Nacionales SA	Guatemala	Km. 34.5 Carretera al Pacífico, Palín, Escuintla, Guatemala	100.00%
Morgan AM&T Hong Kong Company Ltd	Hong Kong	Unit 4-6, 11/F, Siu Wai Industrial Centre, 29-33 Wing Hong S, Cheung Sha Wan, Kowloon, Hong Kong	100.00%
Morgan Materials Hungary LLC[23]	Hungary	Csillagvirág Str. 7, H1106 Budapest, Hungary	100.00%
Morgan Advanced Materials India Private Ltd	India	P-11, Pandav Nagar, Mayur Vihar Phase-1, New Delhi, 110091, India	100.00%
Morganite Crucible (India) Ltd	India	B-11, MIDC Industrial Area, Waluj, Aurangabad, 431 136, Maharashtra, India	75.00%
Diamond Crucible Company Ltd	India	B-11, MIDC Industrial Area, Waluj, Aurangabad, 431 136, Maharashtra, India	87.25%
Ciria India Ltd[23]	India	P-11 Pandav Nagar, Mayur Vihar Phase-1, New Delhi, 110091, India	70.00%
Murugappa Morgan Thermal Ceramics Ltd[6]	India	'Dare House Complex' Old No: 234 New No: 2 NSC Bose Road, Chennai, 600 001, India	51.00%
Thermal Ceramics Italiana S.R.L.[22]	Italy	Via Vittor Pisani 20, 20124, Milan, Italy	100.00%
Morgan Carbon Italia S.R.L.	Italy	Via Roma, 338, Martinsicuro TE, 64014, Italy	100.00%
Morganite Carbon KK	Japan	30-31 Enoki-Cho, Suita City, Osaka, 564-0053, Japan	100.00%
Shin-Nippon Thermal Ceramics Corporation[7]	Japan	Portus Center Building 12F, 4-45-1 Ebisujimacho, Sakai-ku, Sakai-shi, Osaka 590-0985, Japan	50.00%
Morgan Korea Company Ltd[4,13]	Korea	46 gil 27, Nongong Jungang Ro, Nongong Eup, Dalsung Gun, Daegu City, Korea	93.19%
Morganite Luxembourg S.A.	Luxembourg	BP 15, Capellen, L 8301, Luxembourg	100.00%
MCE Finance Sarl[1]	Luxembourg	Rue des Trois Cantons, Windhof, Koerich, L-8399, Luxembourg	100.00%
Morgan Carbon (M) Sdn Bhd (in liquidation)	Malaysia	c/o Messrs. Chor Pee Anwarul & Co., 2790, Mezzanine Floor, Jalan Changkat Permata, Taman Permata, 53300 Kuala Lumpur, Malaysia	100.00%
Grafitos y Maquinados, S.A. de C.V.[1, 24]	Mexico	Cerrada de la Paz No. 101, Col. Industrial La Paz, Pachuca Hidalgo, Mexico	100.00%
Grupo Industrial Morgan, S.A. de C.V.[1, 24]	Mexico	Cerrada de la Paz NO 101, Fraccionamiento Industrial La Paz, Mineral de la Reforma, 42181 Hidalgo, 42092, Mexico	100.00%
Morgan Technical Ceramics S.A. de CV.[24]	Mexico	Av. Fulton No.20, Fracc. Ind. Valle de Oro, San Juan del Rio, Queretaro C.P. 76802, Mexico	100.00%
Morgan Holding Netherlands B.V.	Netherlands	Oude Veiling 3, 1689 AA, Zwaag, The Netherlands	100.00%
Gunac B.V.	Netherlands	Oude Veiling 3, 1689 AA, Zwaag, The Netherlands	100.00%
Morgan Terrassen B.V.	Netherlands	Oude Veiling 3, 1689 AA, Zwaag, The Netherlands	100.00%
Morgan AM&T B.V.	Netherlands	Oude Veiling 3, 1689 AA, Zwaag, The Netherlands	100.00%
Thermal Ceramics Benelux B.V.	Netherlands	Tramweg 27, 3255 MB Oude Tonge, The Netherlands	100.00%
Morgan Donald Brown Ltd	New Zealand	c/o KPMG, 18 Viaduct Harbour Avenue, Maritime Square, Auckland 1010, New Zealand	100.00%
Morgan Carbon Polska Sp.zoo	Poland	ul. Iskry 26, 01-472 Warszawa, Poland	100.00%
Thermal Ceramics Polska Sp.zoo	Poland	Towarowa 9, 44-100 Gliwice, Poland	100.00%

Notes to the Company balance sheet continued

42. Fixed asset investments continued

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Morgan Thermal Ceramics Sukhoy Log LLC[25]	Russia	Russia 624800, Sverdlovsk District, Sukhoi Log, 624800, Ul. Militseyskaya 2	51.00%
Morgan Ceramics Asia Pte. Ltd[1]	Singapore	150 Kampong Ampat, #05-06A, KA Centre, 368324, Singapore	100.00%
Grandtech Industrial Ceramics (Pty) Ltd (in process of de-registration)	South Africa	149 South Rand Road, Tulisa Park, Johannesburg, 2197, South Africa	100.00%
Morganite Ujantshi (Pty) Ltd	South Africa	149 South Rand Road, Tulisa Park, Johannesburg, 2197, South Africa	74.90%
Thermal Ceramics South Africa (Pty) Ltd	South Africa	149 South Rand Road, Tulisa Park, Johannesburg, 2197, South Africa	100.00%
Morganite South Africa (Pty) Ltd	South Africa	149 South Rand Road, Tulisa Park, Johannesburg, 2197, South Africa	100.00%
Thermal Ceramics Espana SL	Spain	Juan Pablo II, no 6, 2, local A, 12003, Castellon, Spain	100.00%
Morganite Espanola S.A.	Spain	Juan Pablo II, 6. 2e Local A, 12003 Castellon, Spain	100.00%
Morgan Matroc S.A. (in liquidation)	Spain	Roger de Lluria 104 5º-2ª., 08037 Barcelona, Spain	100.00%
Morganite National Carbon AG	Switzerland	Steinackerstrasse 34, 8302 Kloten, Switzerland	100.00%
Morgan Advanced Materials (Taiwan) Co. Ltd	Taiwan	25 Hsin-Yeh Street, Hsiao Kang, Kaohsiung, 81208, Taiwan	100.00%
Morganite Thermal Ceramics (Taiwan) Ltd	Taiwan	c/o Baker & McKenzie, 15/f, 168 Tun Hwa North Road, Taipei 105, Taiwan	88.00%
Morgan Holdings (Thailand) Ltd[2]	Thailand	25th Floor Abdulrahim Place, 990 Rama IV Road, Bangkok 10500, Thailand	100.00%
Morgan Technical Ceramics (Thailand) Ltd[2]	Thailand	No. 958 On-nuch Road, Khwaeng Suanluang, Khet Suanluang, Bangkok, 10250, Thailand	100.00%
MKGS Morgan Karbon Grafit Sanayi Anonim Sirketi	Turkey	Osmangazi Mahallesi 2647.Sokak No:27/3 Kıraç Esenyurt Istanbul 34522 Turkey	100.00%
Morgan Advanced Materials Industries Ltd	United Arab Emirates	Plot No. KHIA4 - 07A, Taweelah, Abu Dhabi, United Arab Emirates	100.00%
Morgan Ceramics Middle East FZE	United Arab Emirates	Business Centre 4, 403, Rak Free Trade Zone, PO Box 16426, Ras Al Khaimah, United Arab Emirates	100.00%
Morgan International Holding Limited	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
NP Aerospace Ltd	United Kingdom	473 Foleshill Road, Coventry, West Midlands, CV6 5AQ, UK	100.00%
Terrassen Holdings Ltd[8]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morgan Technical Ceramics Ltd	United Kingdom	Morgan Drive, Stourport-on-Severn, Worcestershire, DY13 8DW, UK	100.00%
Morganite Electrical Carbon Ltd	United Kingdom	Upper Fforest Way, Morriston, Swansea, West Glamorgan, SA6 8PP, UK	100.00%
Thermal Ceramics UK Ltd	United Kingdom	Tebay Road, Bromborough, Wirral, CH62 3PH, UK	100.00%
Morganite Special Carbons Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Clearpower Ltd[3,17]	United Kingdom	473 Foleshill Road, Coventry, Warwickshire, CV6 5AQ, UK	99.01%
Morgan Trans Ltd[6]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	51.00%
MCCo Ltd[7]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Thermal Ceramics Europe Ltd[7]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Thermal Ceramics Ltd[7]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morganite Crucible Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Certech International Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morgan Electro Ceramics Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morgan Europe Holding Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morgan Holdings Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morgan North America Holding Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morganite Carbon Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Petty France Investment Nominees Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
The Morgan Crucible Company Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Jemmtec Ltd[16]	United Kingdom	Magma Ceramics, Low Road, Earlsheaton, Dewsbury, West Yorkshire, WF12 8BU, UK	34.96%
TCG Guardian 1 Ltd	United Kingdom	473 Foleshill Road, Coventry, Warwickshire, CV6 5AQ, UK	100.00%
TCG Guardian 2 Ltd	United Kingdom	473 Foleshill Road, Coventry, Warwickshire, CV6 5AQ, UK	100.00%
MNA Finance Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%

42. Fixed asset investments continued

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Morgan Finance Management Ltd	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Morgan European Finance Ltd[1]	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	100.00%
Law Debenture MC Senior Pension Trust Corporation	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	n/a
Morgan Crucible Pension Trustees Ltd	United Kingdom	Quadrant, 55/57 High Street, Windsor, Berkshire, SL4 1LP, UK	n/a
Integrated Survivability Technologies Ltd	United Kingdom	21 Holborn Viaduct, London, EC1A 2DY, UK	50.00%
Certech Inc.[14]	United States	1 Park Place West, Wood-Ridge NJ 07075, USA	100.00%
Graphite Die Mold, Inc.[14]	United States	18 Air Line Park, Durham, Connecticut, 06422-1000, USA	100.00%
Morgan Advanced Ceramics Inc.[14]	United States	2425 Whipple Road, Hayward, CA , 94544, USA	100.00%
Morgan Advanced Materials and Technology Inc.[14]	United States	441 Hall Avenue, St. Marys, Pennsylvania, 15857, USA	100.00%
Morgan Advanced Materials Inc.[14]	United States	4000 West Chase Blvd, Suite 170, Raleigh, North Carolina, 27607, USA	100.00%
Morganite Crucible Inc.[21]	United States	22 N. Plains Industrial Road, Suite 1, Wallingford, Connecticut, 06492, USA	100.00%
Morganite Inc.[14]	United States	4000 West Chase Blvd, Suite 170, Raleigh, North Carolina, 27607, USA	100.00%
Morganite Industries Inc.[12]	United States	4000 West Chase Blvd, Suite 170, Raleigh, North Carolina, 27607, USA	100.00%
National Electrical Carbon Products Inc.[15]	United States	PO Box 1056, 251 Forrester Drive, Greenville, South Carolina, 29602, USA	100.00%
Thermal Ceramics Inc.[14]	United States	PO Box 923, 2102 Old Savannah Road, Augusta, Georgia, 30906, USA	100.00%
Thermal Ceramics Venezuela CA[23]	Venezuela	Zona Ind. El Recreo, Av. 87 N° 105-121 Flor Amarillo, Valencia Edo.Carabobo. Zona Postal 2003, Venezuela	100.00%

1. Directly owned by Morgan Advanced Materials plc.
2. 99.98% owned by Morgan Advanced Materials plc.
3. 99% owned by Morgan Advanced Materials plc.
4. 93.19% owned by Morgan Advanced Materials plc.
5. 70% owned by Morgan Advanced Materials plc.
6. 51% owned by Morgan Advanced Materials plc.
7. 50% owned by Morgan Advanced Materials plc.
8. 8.18% owned by Morgan Advanced Materials plc.
9. 4% owned by Morgan Advanced Materials plc.
10. 1.98% owned by Morgan Advanced Materials plc.
11. Ownership held in Class A and Class B Common Stock.
12. Ownership held in Class A, Class B and Class C Common Stock.
13. Ownership held in Common and Preference Shares.
14. Ownership held in Common Stock.
15. Ownership held in Common Stock of no par value.
16. Ownership held in Ordinary A and B Shares.
17. Ownership held in Ordinary A, B, and C and Preference A and B Shares.
18. Ownership held in Ordinary and Non-Cumulative Non-Participating Redeemable Preference Shares.
19. Ownership held in Ordinary Shares of no par value.
20. Ownership held in Partnership Shares.
21. Ownership held in Preferred Stock and no par Common Stock.
22. Ownership held in Quotas.
23. Ownership held in Registered Capital.
24. Ownership held in Series A and Series B.
25. Subsidiary not included in consolidated accounts as the Company does not exercise management control.

Notes to the Company balance sheet
continued

43. Derivative financial assets and liabilities

	2017 £m	2016 £m
Derivative financial assets		
Forward foreign exchange contracts non-designated	16.7	8.6

Derivative financial liabilities		
Forward foreign exchange contracts non-designated	(2.2)	(12.1)

Fair values are measured using a hierarchy where the inputs are:

Level 1 – quoted prices (unadjusted) in active markets for identical assets or liabilities;

Level 2 – inputs other than quoted prices included within Level 1 that are observable for the asset or liability either directly or indirectly;

Level 3 – inputs for the assets or liability that are not based on observable market data (unobservable inputs).

The derivative financial assets and liabilities are all measured using Level 2 inputs. The fair value of forward foreign exchange contracts is estimated by discounting the future cash flows using appropriate market-sourced data at the balance sheet date.

Group statistical information

under adopted IFRSs

	2013 £m	2014 Results before specific adjusting items Restated[2] £m	2015 Results before specific adjusting items £m	2016 Results before specific adjusting items £m	2017 Results before specific adjusting items £m
Revenue	957.8	921.7	911.8	989.2	**1,021.5**
Profit from operations before restructuring costs, other items and amortisation of intangible assets	119.0	118.0	109.6	117.9	**119.7**
Restructuring costs and other items:					
Restructuring costs	(11.3)	(5.9)	(4.1)	(1.5)	**–**
Gain on disposal of properties	0.8	0.3	0.5	0.5	**–**
Profit from operations before amortisation of intangible assets	108.5	112.4	106.0	116.9	**119.7**
Amortisation of intangible assets	(8.3)	(8.2)	(7.1)	(7.9)	**(7.3)**
Operating profit	100.2	104.2	98.9	109.0	**112.4**
Net financing costs	(23.3)	(20.8)	(18.1)	(20.0)	**(22.5)**
Share of profit of associate (net of income tax)	–	–	0.3	0.6	**0.2**
Profit before taxation	76.9	83.4	81.1	89.6	**90.1**
Income tax expense	(21.1)	(24.7)	(24.2)	(26.6)	**(26.9)**
Profit after taxation before discontinued operations	55.8	58.7	56.9	63.0	**63.2**
Discontinued operations	–	–	–	–	**–**
Profit for the period	55.8	58.7	56.9	63.0	**63.2**
Assets employed					
Property, plant and equipment	241.4	241.0	256.7	303.7	**297.8**
Intangible assets	249.5	235.3	229.8	240.4	**217.0**
Investments and other receivables	8.0	10.2	10.7	10.7	**11.7**
Deferred tax assets	28.2	8.5	4.4	6.1	**9.1**
Net current assets	132.8	143.2	151.3	91.6	**129.4**
Total assets less current liabilities	659.9	638.2	652.9	652.5	**665.0**
Employee benefits	144.6	211.8	204.5	271.1	**218.0**
Provisions and other items	207.7	236.3	259.7	208.4	**202.2**
Deferred tax liabilities	33.5	2.4	2.3	8.3	**10.5**
	274.1	187.7	186.4	164.7	**234.3**
Equity					
Total equity attributable to equity holders of the parent Company	238.1	151.2	149.8	120.8	**195.2**
Non-controlling interests	36.0	36.5	36.6	43.9	**39.1**
Total equity	274.1	187.7	186.4	164.7	**234.3**
Ordinary dividends per share	10.5p	10.9p	11.0p	11.0p	**11.0p**
Basic earnings per share	14.8p	2.7p	11.9p	18.4p	**37.8p**
Diluted earnings per share	14.7p	2.7p	11.9p	18.4p	**37.5p**
Headline earnings per share*	21.5p	22.1p	20.8p	22.7p	**22.5p**
Diluted headline earnings per share*	21.4p	22.1p	20.8p	22.7p	**22.4p**

1. IAS 19 (revised) Employee Benefits has been adopted from 2013 onwards.
2. 2014 has been restated for the reclassification of deferred tax assets and liabilities. Figures for 2013 have not been restated for this change.

Cautionary statement

This document has been prepared for and only for the members of the Company as a body and no other persons. Its purpose is to assist members in assessing how the Directors have performed their duties, the Company's strategies and the potential for those strategies to succeed and for no other purpose. Save as would otherwise arise under English law, the Company, its Directors, employees, agents or advisers do not accept or assume responsibility or liability to any third parties to whom this document is shown or into whose hands it may come and any such responsibility or liability is expressly disclaimed.

This document contains forward-looking statements that are subject to risk factors associated with, amongst other things, the economic and business circumstances occurring from time to time in the countries, sectors and markets in which the Group operates. These and other factors could adversely affect the outcome and financial effects of the plans and events described. Forward-looking statements by their nature involve a number of risks, uncertainties and assumptions because they relate to events and/or depend on circumstances that may or may not occur in the future and could cause actual results and outcomes to differ materially from those expressed in or implied by the forward-looking statements.

It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a wide range of such variables. No assurances can be given that the forward-looking statements in this document will be realised. The forward-looking statements reflect the knowledge and information available at the date this document was prepared and will not be updated during the year, but will be considered in the Annual Report for next year. Nothing in this document should be construed as a profit forecast.

Glossary of terms

Book-to-bill ratio*	The book-to-bill ratio is the ratio of orders received to sales in the period. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Cash flow from operations*	Cash generated from operations before cash flows from restructuring costs and other items. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Constant-currency	Constant-currency revenue and Group headline operating profit are derived by translating the prior year results at current year average exchange rates. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Corporate costs	Corporate costs consist of the costs of the central head office.
Energy use	Energy from all sources.
Free cash flow before acquisitions and dividends*	Cash generated from operations less net capital expenditure, net interest paid and tax paid. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Group earnings before interest, tax and amortisation (EBITA) *	EBITA is defined as Group operating profit before specific adjusting items and amortisation of intangible assets. Segment – Divisional and global business unit – EBITA is stated before unallocated corporate costs. See Definitions and Reconciliations of non-GAAP Measures to GAAP Measures on pages 41 to 44.
Group earnings before interest, tax, depreciation and amortisation (EBITDA)*	EBITDA is defined as operating profit before specific adjusting items, amortisation of intangible assets, restructuring costs and other items, and depreciation. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Group headline operating profit*	Operating profit adjusted to exclude specific adjusting items and amortisation of intangible assets. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Headline earnings per share (EPS)*	Headline earnings per share is defined as operating profit adjusted to exclude specific adjusting items and amortisation of intangible assets, plus share of profit of associate less net financing costs, income tax expense and non-controlling interests, divided by the weighted average number of Ordinary shares during the period.
	See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Lost-time accident (LTA)	Accident which results in one or more days' lost time.
Lost-time per LTA	Total time lost due to health and safety in the year divided by the number of lost-time accidents reported in the year.
Net debt*	Interest-bearing loans and borrowings and bank overdrafts less cash and cash equivalents.
	See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Restructuring costs and other items	Include the costs of restructuring activity and gain on disposal of property.
	See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Return on invested capital (ROIC)*	Group headline operating profit (operating profit excluding specific adjusting items and amortisation of intangible assets) divided by the 12-month average adjusted net assets (excludes long term employee benefits, deferred tax assets and liabilities, current tax payable, provisions, cash and cash equivalents and interest-bearing loans and borrowings. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Return on operating capital employed (ROCE)*	Group headline operating profit (operating profit excluding specific adjusting items and amortisation of intangible assets) divided by the sum of working capital as defined below and the net book value property, plant and equipment and land and buildings. Goodwill and other intangible assets are excluded. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.
Revenue growth	Revenue growth is defined as current year revenue translated using current year average exchange rates divided by prior year revenue translated using prior year average exchange rates.
Specific adjusting items	See note 6 to the financial statements for further details
Waste	Hazardous and non-hazardous waste, including recycled material.
Water use/intensity	Water from all sources, including process, irrigation and sanitary use.
Working capital (as used in the ROCE* calculation)	Working capital as used in the calculation of ROCE is the sum of inventories, trade and other receivables, net derivative financial liabilities, net assets classified as held-for-sale, trade and other payables, plus the net of deferred consideration, third-party dividends payable and other sundry items. See the Definitions and reconciliations of non-GAAP measures to GAAP measures on pages 41 to 44.

Shareholder information

Analysis of Ordinary shareholdings as at 31 December 2017

		Number of holdings	% of total holdings	Number of shares	% of share capital
Size of holding	1-2,000	4,989	77.34	2,468,113	0.87
	2,001-5,000	759	11.77	2,464,067	0.86
	5,001-10,000	274	4.24	1,943,308	0.68
	10,001-50,000	213	3.30	4,532,204	1.59
	50,001-100,000	43	0.67	3,178,127	1.11
	100,001 and above	173	2.68	270,784,169	94.89
		6,451	**100.00**	**285,369,988**	**100.00**
Holding classification	Individuals	5708	88.48	8,399,595	2.94
	Nominee companies	709	11.00	276,273,767	96.82
	Trusts (pension funds etc)	8	0.12	84,947	0.03
	Others	26	0.40	611,679	0.21
		6,451	**100.00**	**285,369,988**	**100.00**

Key dates

11 May 2018	2018 Annual General Meeting (AGM).
26 July 2018	Half-year results announced via the Regulatory News Service and on the Company's website. Since 2015 half-year results are available online only.

Dividend payment dates

24 November 2017	An interim cash dividend of 4.0 pence per Ordinary share of 25 pence each was paid to shareholders registered at the close of business on 3 November 2017.
25 May 2018	Subject to shareholders' approval at the 2018 AGM, a final cash dividend of 7.0 pence per Ordinary share of 25 pence each will be paid to shareholders registered at the close of business on 4 May 2018.
29 March 2018 and 1 October 2018	Dividend payment dates in respect of the 5.5% Cumulative First Preference shares of £1 each and the 5.0% Cumulative Second Preference shares of £1 each.

Other information

Capital gains tax	The market values of quoted shares and stocks at 31 March 1982 were: Ordinary shares of 25 pence each 122.5 pence 5.5% Cumulative First Preference shares of £1 each 30.5 pence 5.0% Cumulative Second Preference shares of £1 each 28.5 pence For capital gains tax purposes, the cost of Ordinary shares is adjusted to take account of rights issues. Any capital gains arising on disposal will also be adjusted to take account of indexation allowances. Since the adjustments will depend on individual circumstances, shareholders are recommended to consult their professional advisers.
Share price	The price can be obtained on the Company's website: **www.morganadvancedmaterials.com**
ISIN Code	GB0006027295
LEI	I4KI4LL95N2PHDL7EG85
Ticker symbol	MGAM

Company details

Company name change	The Company changed its name to Morgan Advanced Materials plc (from The Morgan Crucible Company plc) on 27 March 2013. Following this change, share certificates issued in the name 'The Morgan Crucible Company plc' remain valid (replacement share certificates in the name 'Morgan Advanced Materials plc' were not issued to existing shareholders).
Registered office	Quadrant, 55-57 High Street, Windsor, Berkshire SL4 1LP Registered in England and Wales No. 286773 Telephone: +44 (0)1753 837000 **www.morganadvancedmaterials.com**
Website	The Company's website provides information about the Group including the markets in which it operates, its strategy and recent news from the Group. The 'Investors' section is a key source of information for shareholders, containing details of financial results, shareholder meetings and dividends, and providing access to frequently asked questions. Current and past annual, half-year and EHS reports are also available to view and download.

Shareholder information
continued

Company details

Company registrars	Link Asset Services, The Registry, 34 Beckenham Road, Beckenham, Kent BR3 4TU Telephone (in the UK): 0871 664 0300 Telephone (from outside the UK): +44 (0)371 664 0300 Email: **enquiries@linkgroup.co.uk** Website: **www.linkassetservices.com/shareholders** Calls cost 12 pence per minute plus your phone company's access charge. Calls outside the UK will be charged at the applicable international rate. Lines are open between 9am and 5.30pm, Monday to Friday excluding public holidays in England and Wales. Shareholders with queries relating to their shareholding should contact Link directly. Alternatively, shareholders may find the 'Investors' section of our website useful for general enquiries.
Share portal www.signalshares.com	The 'Signal shares' share portal is a secure online site where you can manage your shareholding quickly and easily, reducing the need for paperwork and providing 24-hour access for your convenience. Through Signal shares you can view your holding and get an indicative valuation, change your address, arrange to have dividends paid into your bank account and view your dividend payment history. To register visit **www.signalshares.com**. You will need your investor code, which can be found on your share certificate or your dividend confirmation statement.
Dividend payments	You can choose to receive your dividend in a number of ways. Dividends will automatically be paid to you by cheque and sent to your registered address unless you have chosen one of the options below:
Direct payment to your bank	Cash dividends can be paid directly to a UK bank or building society account. This means that your dividend reaches your bank account on the payment date, it is more secure (cheques can sometimes get lost in the post), you avoid the inconvenience of depositing a cheque and cheque fraud is reduced. If you have a UK bank account you can sign up for this service on the share portal at **www.signalshares.com** (by clicking on 'Manage your account' and then 'Payment preferences' and following the on-screen instructions), or by contacting Link.
International payments service	If you live outside the UK, Link has partnered with Deutsche Bank to provide you with a service that will convert your sterling dividends into your local currency at a competitive rate. You can choose to receive payment directly into your local bank account or, alternatively, you can be sent a currency draft. You can sign up for this service on the share portal at **www.signalshares.com** (by clicking on 'Manage your account' and then 'Payment preferences' and following the on-screen instructions), or by contacting Link. For further information contact Link by telephone on +44 (0)371 664 0300, or by email at **ips@linkgroup.co.uk**. Calls are charged at the standard geographic rate and will vary by provider. Calls outside the UK will be charged at the applicable international rate. Lines are open between 9am and 5.30pm, Monday to Friday excluding public holidays in England and Wales.

Company details

Multiple accounts on the shareholder register	If a shareholder receives two or more sets of AGM documents, this means that there is more than one account in their name on the shareholder register, perhaps because the name or the address appears on each account in a slightly different way. If you have multiple accounts and would like them to be combined, please contact Link Asset Services, as detailed above under the heading 'Company registrars'.
Buying and selling shares	Link Asset Services provides a simple and competitively priced service to buy and sell shares. There is no need to pre-register and there are no complicated application forms to complete. For more information, visit **www.linksharedeal.com** or call +44 (0)371 664 0445. Calls are charged at the standard geographic rate and will vary by provider. Calls outside the UK will be charged at the applicable international rate. Lines are open between 8am and 4.30pm, Monday to Friday, excluding public holidays in England and Wales. This is not a recommendation to buy or sell shares and this service may not be suitable for all shareholders. The price of shares can go down as well as up and you are not guaranteed to get back the amount you originally invested. Terms, conditions and risks apply. Link Asset Services is a trading name of Link Market Services Trustees Limited, which is authorised and regulated by the Financial Conduct Authority. This service is only available to private shareholders resident in the European Economic Area, the Channel Islands or the Isle of Man.
Donate your shares to charity	If you have only a small number of shares which are uneconomical to sell, you may wish to consider donating them to charity, free of charge, through ShareGift (registered charity 1052686), a charity that specialises in the donation of small, unwanted shareholdings to good causes. You can find out more by visiting **www.sharegift.org** or by telephoning +44 (0)20 7930 3737.
Unsolicited telephone calls and mail	Shareholders in companies may receive unsolicited phone calls or correspondence concerning investment matters. If you are offered unsolicited investment advice, discounted shares, a premium price for shares you own, or free company or research reports, please check the company or person contacting you is properly authorised by the Financial Conduct Authority before getting involved. Further information about what you should do is available on our website in the 'Shareholder Centre' within the 'Investors' section.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Our Full Year Results webcast will be given at 10:45AM on 27th February 2018. Sign up to view this here
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