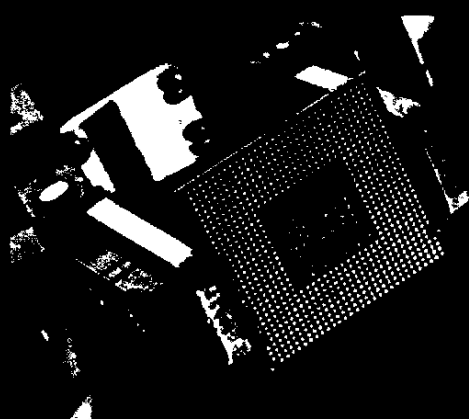




Resilient,
Sustainable,
Innovative.



WEDNESDAY



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COMPANIES HOUSE

Overview

Morgan Advanced Materials is a business rich in history and innovation. Founded in the UK in 1856, we have grown into a global organisation with 70 sites in 18 countries. Our model to serve our customers where they need us has led to a diversified product range using our unparalleled expertise in ceramic and carbon materials, which we exploit to solve difficult problems for our customers across a diverse range of markets.

We are a purpose driven organisation. Our purpose is to use advanced materials to make the world more sustainable and to improve the quality of life. We deliver on that purpose through the products that we make, and the way that we make them.

We help our customers push the limits of their processes and products to meet the demanding requirements they face, from higher process temperatures to higher product performance to increasing miniaturisation.

Sustainable solutions for a greener future



We play a role in helping the world become more sustainable, enabling energy transition through our products and by reducing our own environmental impact. Our approach to sustainability is embedded within our strategy. We see this as fundamental to our future growth and resilience, and to delivering exceptional value to our stakeholders and building a company that our people can be proud of.



Read more on [pages 32 to 39](#)

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Our strategy in action

Making a big positive difference

➔ See [page 20](#)



Delighting the customer

➔ See [page 22](#)



Innovating to grow

➔ See [page 23](#)



Morgan in numbers

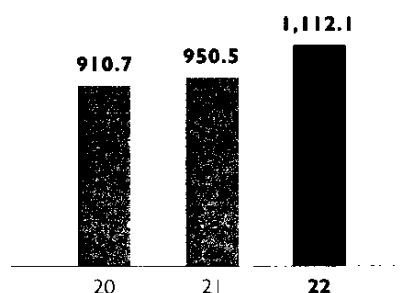
We assess our performance across a wide range of metrics. To support the Group's strategy and to monitor performance, the Board of Directors and the Executive Committee use a number of financial key performance indicators (KPIs).

Financial KPIs (statutory and adjusted performance KPIs)

Revenue (£m)

Performance

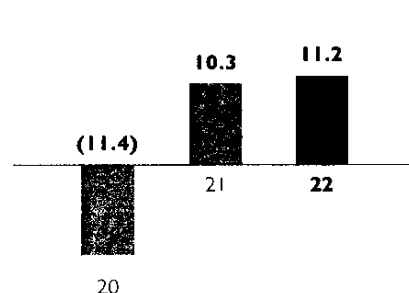
On a reported basis, revenue increased by £161.6 million, 17.0%, reflecting continued strong demand across all global business units. See the Review of operations on pages 48 to 49 for more detail.



Organic constant currency revenue growth* (%)

Performance

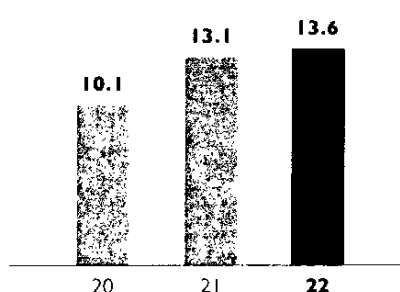
On an organic constant currency* basis revenue grew by 11.2%, with growth across all global business units. See the Review of operations on pages 48 to 49 for more detail.



Adjusted operating profit margin* (%)

Performance

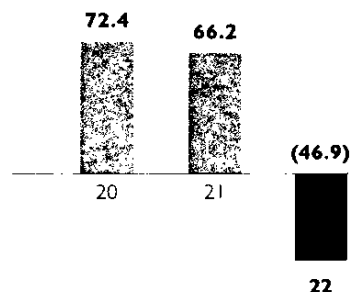
Margin improvement from increased volumes, with pricing and efficiency savings more than offsetting cost inflation. See the Review of operations on pages 48 to 49 for more detail.



Free cash flow before acquisitions, disposals and dividends* (£m)

Performance

Lower free cash flow* from a one-off pension contribution of £67.0m and increased investment in working capital to secure our supply chain and capital expenditure to support ongoing growth.



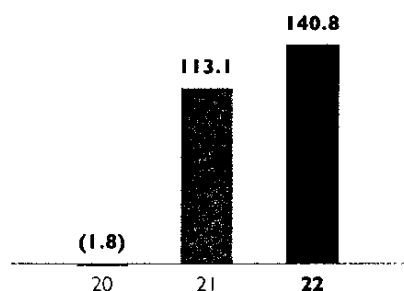
Throughout the Annual Report, including the Strategic Report, adjusted measures are used to describe the Group's financial performance. These adjusted measures are not recognised under IFRS or other generally accepted accounting principles (GAAP). These measures are shown because the Directors consider 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. 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 57 to 59.

Our financial KPIs are a balanced set of metrics which help the Board and the Executive Committee assess performance and progress against our execution priorities and business plans. These and other KPIs are used to evaluate operating performance and make financial, strategic and operating decisions.

Operating profit (£m)

Performance

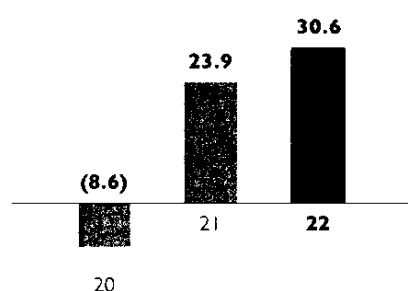
Operating profit improvement from increased volumes, with pricing and efficiency savings more than offsetting cost inflation. See the Review of operations on pages 48 to 49 for more detail.



Continuing EPS (p)

Performance

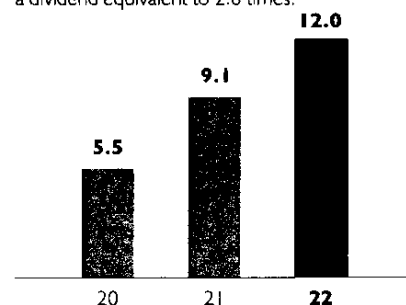
Benefits arising from increased volumes across all global business units, with pricing and efficiency savings more than offsetting cost inflation.



Dividend per share (p)

Performance

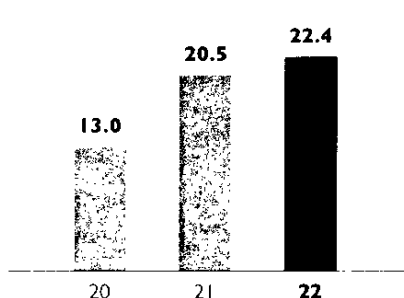
The Board has committed to growing the dividend with earnings to around 2.5 times dividend cover. For the year ended 31 December 2022, the Board is recommending a dividend equivalent to 2.8 times.



Return on invested capital* (%)

Performance

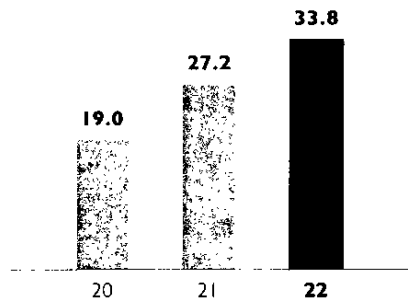
Higher return on invested capital*, as we have increased investment in working capital and capital expenditure to support improved adjusted operating profit*.



Adjusted EPS* (p)

Performance

Benefits arising from increased volumes across all global business units, with pricing and efficiency savings more than offsetting cost inflation.

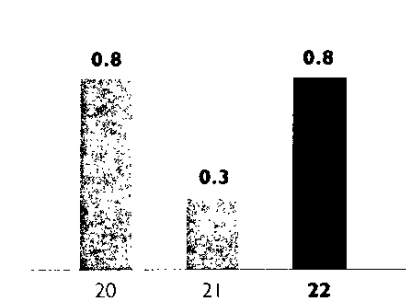


Net debt* to EBITDA*

(excluding lease liabilities) (X)

Performance

Net debt* to EBITDA* (excluding lease liabilities) was 0.8 times at the end of 2022, following a one-off pension contribution of £67.0m, increased working capital investment and increased capital expenditure.



The continuing and discontinued EPS KPI has been removed from the 2022 Annual Report because the impact of discontinued operations is reducing. It has been replaced with net debt* to EBITDA* (excluding lease liabilities) because this metric is a key part of the financial framework which supports our investment proposition as set out in the Chief Executive Officer's review on page 19.

At Morgan Advanced Materials we are committed to a sustainable future. In March 2021, we set stretching goals across a number of environmental, social and governance areas.

Key environmental, social and governance (ESG) measures

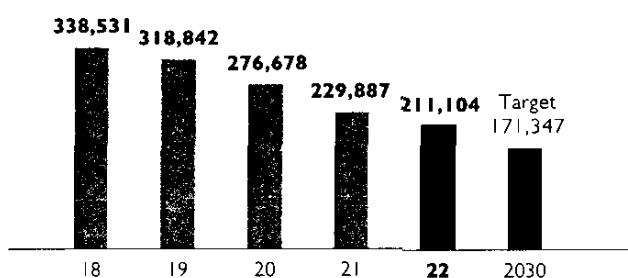
CO₂e scope 1 and 2 emissions (metric tonnes)

Alignment to strategy

1 2 3

Why do we measure this KPI?

Our sustainability agenda includes actions to reduce greenhouse gas (GHG) emissions and combat climate change. In March 2021, we announced a commitment to reduce absolute GHG emissions (scope 1 and 2) by 50% (against 2015 levels) by 2030.



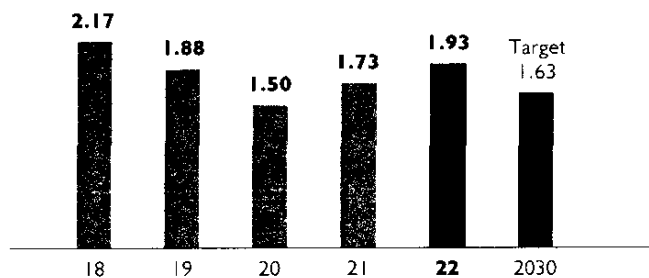
Overall water withdrawal (million m³)

Alignment to strategy

1 2 3

Why do we measure this KPI?

By 2030, we will reduce our total withdrawal of water by 30% (against our 2015 baseline), and we are implementing water sustainability projects globally to achieve this goal.



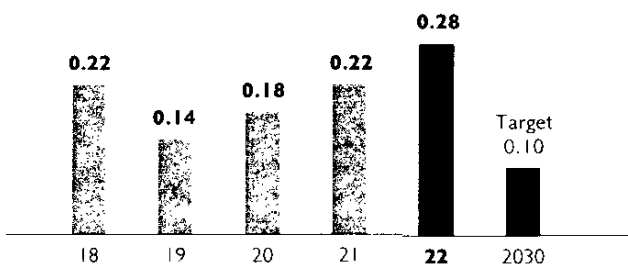
Lost-time accident (LTA) rate*

Alignment to strategy

1 2 3

Why do we measure this KPI?

We are working towards our aspiration of zero harm to all our employees. We are committed to conducting all our activities in a manner that builds a caring safety culture and develops a world-class safety system that supports this effort.



* A lost-time accident (LTA) is defined as an accident or work-related illness which results in one or more days of lost time. Calculated as total number of lost-time accidents in the year, multiplied by 100,000 hours worked, divided by total number of hours worked.

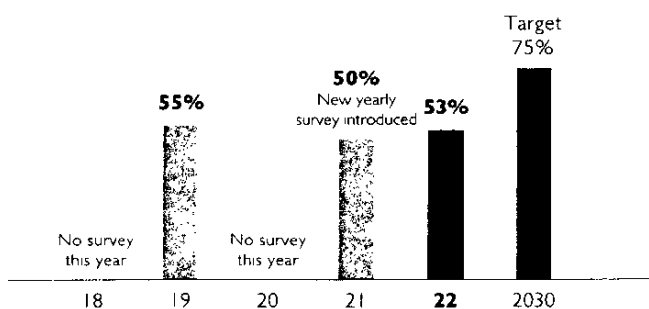
Employee engagement rate

Alignment to strategy

1 2 3

Why do we measure this KPI?

We measure the engagement of our people through an all-employee engagement survey called 'Your Voice'. As a result of the survey we build a tailored engagement plan to tackle the key issues across our sites, businesses and the Group.



Water withdrawal in stressed areas*

(% reduction from 2015 baseline)

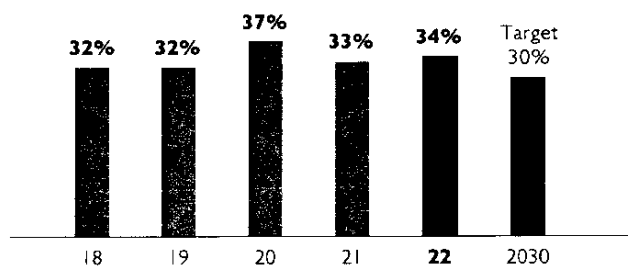
Alignment to strategy

1 2 3

Why do we measure this KPI?

We recognise that in some instances our water demands are in areas of increasing water stress. Approximately 21% of our manufacturing operations are in these water stress areas.

Our goal is to maintain a 30% reduction despite year-on-year business growth. By improving our water use in these areas, we will positively impact the local communities in which we operate.



* Water stressed areas include Spain, Italy, Turkey, Mexico, India, United Arab Emirates, Argentina, Australia, and the state of California, USA.
2021 and prior years have been restated to include the manufacturing site at Casalpusterleno, Italy.

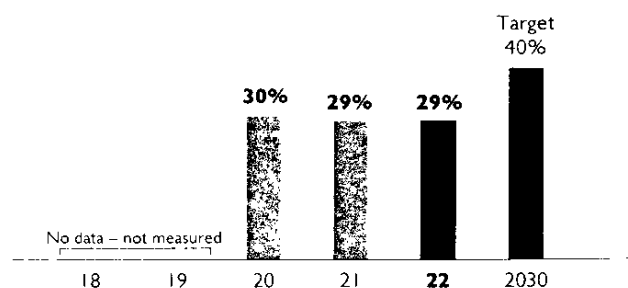
Female representation in leadership*

Alignment to strategy

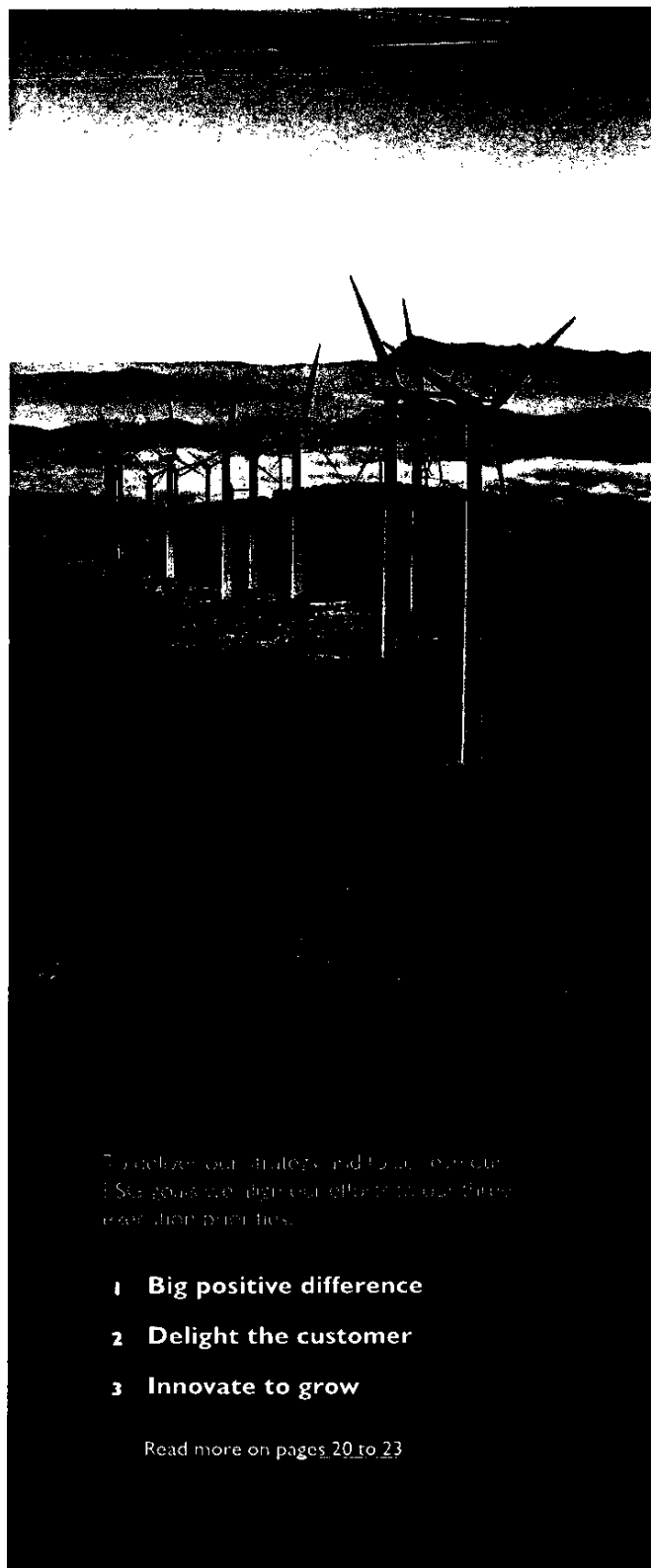
1 2 3

Why do we measure this KPI?

A greater gender diversity just makes sense – it is good for Morgan and good for employees. We are continuing to take action to achieve a more balanced proportion of women in senior positions.



* Includes Executive w/o CEO/CFO plus 2nd to 4th tier.



To realize our strategy and to achieve our ESG goals we align our efforts to our three execution priorities:

- 1 Big positive difference
- 2 Delight the customer
- 3 Innovate to grow

Read more on pages 20 to 23

Business overview

We are the global manufacturer of advanced carbon and ceramic materials for complex and technologically demanding applications.

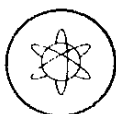
The versatility and performance of ceramics and carbon materials enables us to support a wide variety of applications in diverse end-markets. Our applications range from ceramic cores for casting aero engine turbine blades to silicon carbide focus rings for semiconductor etch, and from carbon brushes in onshore wind turbines to thermal insulation solutions for hydrogen reformers.

In each of these applications, in each of these markets, we bring our deep materials and engineering expertise to bear, helping our customers to reduce their energy consumption, emissions and operating costs, with applications that frequently require extensive qualifications.

Our core capabilities

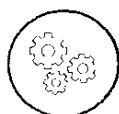
Our strategy builds on our strengths and focuses the Group on scalable businesses in attractive markets. We serve markets that are growing and where we have room to grow, and where our customers value our differentiated products and services.

We have three core capabilities:



Materials science

We are an acknowledged leader in materials science for our chosen technology families. We have four global materials Centres of Excellence (CoE) which consolidate the Group's R&D efforts.



Application engineering

We have built an understanding of the application of our materials science in our customers' products and processes, in order to provide maximum benefit through advanced application engineering.



Customer focus

We build deep and trusted relationships with our customers, working to understand their business and their markets, and their technical challenges and product roadmaps. We align our materials development to solve our customers' problems.

Our five global business units

Thermal Ceramics

Our thermal products are used in high-temperature industrial processing of metals, petrochemicals, cement, ceramics and glass, and by manufacturers in automotive, marine, aerospace, and domestic applications in insulation and fire protection.



Molten Metal Systems

Our Molten Metal Systems business manufactures an extensive range of high-performance crucibles and foundry consumables for non-ferrous metal melting applications.

Electrical Carbon

Our electrical carbon products include electrical carbon brushes and collectors, brush holders, slip rings and linear transfer systems. We engineer high-performance graphite materials, components and sub-assemblies to address our customers' technical challenges.

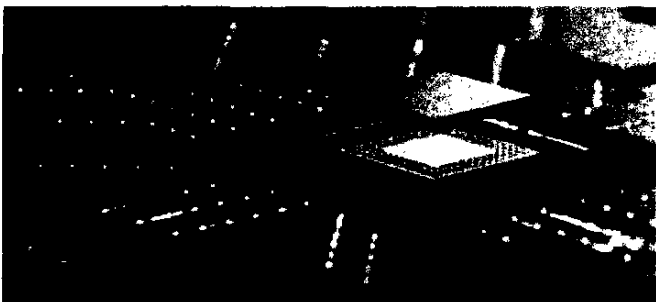


Seals and Bearings

Our seals and bearing products use advanced carbon/graphite, silicon carbide, alumina and zirconia materials, which we engineer into lightweight, low-friction and self-lubricating bearings and seals, predominantly used in pumps.

Technical Ceramics

Our technical ceramics products are used in selected segments of the electronics and semiconductor, energy, healthcare, industrial, petrochemicals, security and transport markets, typically in close collaborative customer relationships.



Investment case

We are well positioned in large and fast-growing markets driven by global mega trends

The demand for renewable energy is growing rapidly as the world seeks to decarbonise. Ongoing urbanisation drives the need for clean energy and transportation solutions. Our growing and ageing population places more, and more complex, demands on healthcare. Digitisation brings huge benefits in efficiency and increasingly in capability, and with that we see ever increasing demand for more and faster processing.

This all translates into a robust growth outlook for our business. Revenues from our faster growing segments, semiconductors, healthcare, clean energy and clean transportation are expected to grow between 7% and 12% per year (through the cycle). Revenue from our core business is expected to grow 2% to 4% per year.

→ Read more on [pages 14 to 15](#)

+4%

EXPECTED CORE
BUSINESS GROWTH

We have leading differentiated positions, and this all starts with our strategy

Our development of strategic capabilities supports the positions we have in each of our markets.

We have deep expertise in carbon and ceramic materials. We spend around £30 million in research and development each year to maintain and strengthen our technical leadership.

We have 460 scientists and engineers across the Group representing 20% of our white-collar workforce. They work in four Centres of Excellence, and within the businesses, sustaining our current materials portfolio, and developing new materials and products.

Each business unit has a clear strategy and has technology roadmaps that flow from this to inform the prioritisation of development resources.

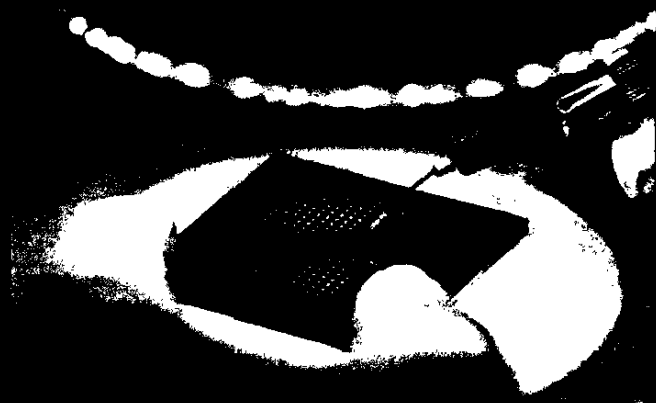
Our application engineers are the bridge between our materials expertise and the specifics of our customers' markets and applications. Our application engineers work with customers every day to take their technical challenge and marry it up to a material, and then a manufacturing process.

Through the execution of our strategy, we are strengthening our market positions and steadily building closer relationships with our customers.

→ Read more on [page 22](#)

£31.6m

RESEARCH AND
DEVELOPMENT EXPENSE



Our purpose, our strategy and our people differentiate us at Morgan Advanced Materials, altogether driving superior value for our stakeholders. We are experts in materials science with a track record of delivering for our customers, drawing on our 166 years of innovation.

We play a crucial role in helping the world become more sustainable

We do this through the products we make, and the way that we make them.

Our products help our customers to be more efficient – to use less energy in their manufacturing process or in their product, and to generate less CO₂.

We are also working hard to decarbonise our own operations – to produce our products more efficiently and to reduce our own CO₂ emissions and manage our water usage more sustainably.

We have a solid plan for the coming years and are making excellent progress so far. At this point our absolute CO₂ emissions are around 40% down on our 2015 starting point. Whilst our overall water usage has increased during the year, we expect to see the process and infrastructure improvements we have completed during the year reflected in our water usage for 2023.

➔ Read more on [pages 32 to 33](#)

–40%

REDUCTION IN
CO₂ EMISSIONS

We are resilient, delivering attractive through-cycle returns

This resilience comes from the robustness of our strategy and market positions, and from the diversity in our portfolio.

We operate in a diverse set of markets. Some are global, some are regional, but across these markets we have early and later cycle, and counter cyclical exposures.

We have a widely spread customer base. Our largest customer accounts for only 2% of our revenues. Our top ten equate to around 11% of revenues, meaning a significant loss of one customer has limited impact on the Group.

We largely make products where we sell them, with localised supply chain, and this gives us resilience against local shocks. You can see this resilience in our financial performance over the last seven years. We have grown profitability every year except during the height of the pandemic in 2020, and even during that global shock, our revenues only declined 11% and we maintained operating margins above 10%.

➔ Read more on [pages 2 to 3](#)

3-6%

THROUGH-CYCLE GROWTH

Chair's statement



This is my final Annual Report as your Chair before standing down from the Board in June 2023, having served on the Board since 2014. It has been an enormous privilege to be your Chair and as I look back on the last nine years it is gratifying to reflect on the transformation in business performance that our colleagues have achieved. Over that time, through innovation and judicious investment, the Group has repositioned into new growth markets of clean energy, clean transportation, healthcare and semiconductors. At the same time, margins have increased from low single digits to very respectable mid-teens with a trajectory of further improvement.

Looking back at 2022

Our first imperative is the safety and wellbeing of our people and I am disappointed that during 2022 our safety performance dipped. Supporting the executive team, your Board has spent a significant amount of time discussing how safety performance and culture can be improved. These discussions have emphasised a more holistic approach to safety, and this now encompasses greater focus on the wellbeing of our people. My fellow non-executive Directors and I will continue to support the executive team to achieve a position of 'zero harm'.

"I would like to say a huge thanks to all our colleagues, customers, suppliers and investors for their continuing commitment and support to Morgan."

We delivered robust revenue growth in 2022 reflecting growing markets and the benefits of our strategy. Despite the well-documented supply challenges and disruptions, we successfully worked with our customers and suppliers to maintain operational service levels. That is particularly pleasing given the extent of supply chain deficiencies, unprecedented inflation on input costs and challenges in labour supply.

We have covered increased input costs and other inflation impacts through price increases and through continuous improvement in our plants. Our profitability improvement has then flowed from higher volumes, pricing and efficiency focus.

We have invested in supporting our people through the ongoing cost-of-living pressures, both through salary increases and through a wide range of other support measures, including access to a shopping discount platform, site-based recognition activities and family-friendly policies.

We are continuing to work to reduce the Group's environmental impact. I am pleased by the progress we have made this year and the opportunities we have identified for the future. Not only are we making our manufacturing processes more efficient and reducing our CO₂e emissions, but more importantly our products, which have properties to withstand heat and endure other extreme environments, assist our customers in reducing their environmental impact, either by lasting longer or improving the efficient use of resources.

The Board in 2022

In January 2023, we were delighted to appoint Ian Marchant as an independent non-executive Director and Chair Designate, assuming the position of Chair at the conclusion of Morgan's AGM on 29 June 2023, subject to shareholder approval. Ian is a highly strategic and successful leader with more than 35 years of wide-ranging experience at major businesses, bringing a strong track record of value creation and listed board experience. In his capacity as the new Chair, I am confident that Ian will provide the strong leadership required to oversee the future success of Morgan.

In May 2022, after six years with the Company, Chief Financial Officer Peter Turner stepped down from the Board. On behalf of the entire Board, I would like to thank Peter for his outstanding contribution to the Company and wish him a long and happy retirement. Peter was succeeded by Richard Armitage, who joined Morgan from Victrex Group plc, where he was Chief Financial Officer. Richard, who has broad experience in financial management, investor relations, capital markets, M&A, and commercial management, gained through roles in a number of listed and privately owned chemicals and consumer goods companies, is already making a valuable contribution to our Company and I would like to formally welcome him to the Board.

Looking forward to 2023

We experienced a cyber security incident in January 2023, having detected unauthorised activity on our network. Our immediate priority was to respond quickly to the incident to protect the Group's infrastructure and to minimise the impact on operations. I am incredibly grateful for the hard work and dedication shown by our teams in responding to this event. Further details on the impact of the incident can be found on page 19.

We are confident that continued focus on the strengths of the business, underpinned by our resilient balance sheet and the efficiency and productivity gains related to our restructuring programme will support the further successful progress of the Group in the years ahead.

Thank you

It has been a privilege to work with so many talented colleagues at Morgan for the past nine years, as we transformed the Group into the global manufacturer of advanced carbon and ceramic materials for complex and technologically demanding applications. I am particularly proud of the work we have done in creating a diverse Board. As at 31 December 2022, the Board has 43% female representation, one of whom is the Senior Independent Director, and one Director of Southeast Asian origin. The Board has therefore met the FCA's new board diversity targets since 2019.

I have every confidence that the Group, under Pete's leadership, has the capabilities to continue to lead and grow in its markets in the years ahead and I know that our new Chair, Ian Marchant, will provide the Board with strong and effective direction. Finally, I would like to say a huge thanks to all our colleagues, customers, suppliers and investors for their continuing commitment and support to Morgan.

Douglas Caster CBE FIET
Non-executive Chair

Business model

Our purpose is to use advanced materials to make the world more sustainable, and to improve the quality of life.

This purpose guides our actions:

it underpins our work to reduce our environmental impact, informs how we treat our people, and ensures we fulfil our responsibility for good corporate governance.

We play an important role in society, using our deep materials science knowledge and process capability to solve customer problems and deliver on our purpose.

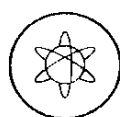
- > We support the United Nations Sustainable Development Goals
- > We aim to be a CO₂ net zero¹ business by 2050

1. Excludes indirect emissions generated by our supply chain, distribution network and employee travel

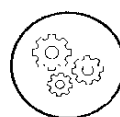
We utilise our distinct competencies

Our strategy builds on our strengths and focuses the Group on scalable businesses in attractive markets.

We have three core capabilities:



Materials science



Application engineering



Customer focus

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

The Group's products are produced within five global business units.

> Thermal Ceramics



> Molten Metal Systems



> Electrical Carbon



> Seals and Bearings



> Technical Ceramics



We service markets ranging from industrial to healthcare



Our thermal products

are used in high-temperature industrial processing of metals, petrochemicals, cement, ceramics and glass, and by manufacturers of equipment for automotive, marine, aerospace, and domestic applications in insulation and fire protection.



Our electrical carbon products

are used in electrified rail, conventional and wind power generation, industrial applications and in high performance semiconductor manufacturing applications.



Our seals and bearings products

are used in pumps for industrial and domestic use, or other sealing applications. We use advanced carbon/graphite, silicon carbide, alumina and zirconia materials to engineer lightweight, low-friction bearings and seals.



Our technical ceramics products

are used in selected segments of the electronics and semiconductor, energy, healthcare, industrial, petrochemicals, security and transport markets, typically in close collaborative customer relationships.

Our products deliver on our purpose

- We manufacture advanced ceramic materials, products and systems for thermal insulation in high-temperature environments.
- We engineer systems for the safety of people and equipment in demanding applications. Our products help customers, especially those operating energy-intensive processes, to reduce energy consumption, emissions and operating costs.
- We manufacture an extensive range of high-performance, energy-saving crucibles and foundry consumables for non-ferrous metal melting applications.
- We produce a wide range of products which are used to transfer electrical current between stationary and rotating or linear moving parts in motor, generator, and current collector applications.
- We create high-performance self-lubricating bearing and seal components, used predominantly in pumps.
- We engineer high-performance functional and structural ceramic materials, components and sub-assemblies to address customer-specific technical challenges.

We contribute positively to the economy and support an improved society for our people, customers, and investors. The economic value we generate includes wages paid to our people, purchases from local and global suppliers, taxes, and dividends – in addition to indirect benefits arising from expenditure by our suppliers, customers and employees.

Our business contributes positively to society. We support the skills development of our people, from apprentice level and operators, through to senior executives. Our global makeup reflects the communities we serve with representatives from many backgrounds, and we strive to promote inclusivity and opportunity for all.

Our operations look to benefit our environment through the products we design and manufacture, products which make more efficient use of resources and can improve the quality of life.

➔ To find out how our people work with our communities visit our website at morganadvancedmaterials.com/community

➔ To find out more about our products and services visit morganadvancedmaterials.com/whatwedo

Market context

We have a strategy based on building deep expertise in materials, markets and customer needs, and that translates into leading, differentiated positions across our markets.

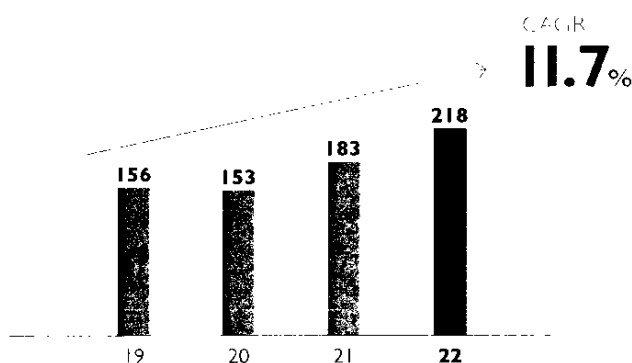
Morgan Advanced Materials is:

- A design partner for our customers, translating their needs into product solutions, distinguishing ourselves through the application engineering that we provide
- Supporting our customers through investments in application testing and using this to inform our technology and product development and to develop bespoke solutions for our customers
- Investing in manufacturing capacity to support customer demand in our core and in four faster growing segments: semiconductors, healthcare, clean energy and clean transportation
- Committed to operating sustainably and helping our customers to improve the sustainability of their products and processes

Growth markets

We are specifically targeting four faster growing markets: **semiconductors, healthcare, clean energy and clean transportation.**

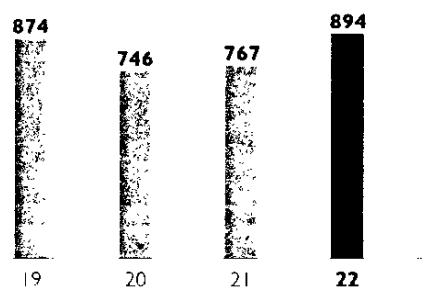
Revenue from faster growing markets (£m)



Core markets

Our core market portfolio is diversified and differentiated. Our core markets make up 80% of Group revenues.

Revenue from core markets (£m)

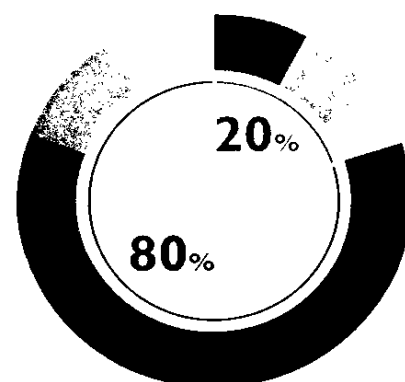


- ➔ Read more on Semiconductors
morganadvancedmaterials.com/Semiconductor
- ➔ Read more on Healthcare
morganadvancedmaterials.com/Healthcare
- ➔ Read more on Clean energy
morganelectricalmaterials.com/CleanEnergy
- ➔ Read more on Clean transportation
morganthermalceramics.com/CleanTransportation

These are market segments where demands on materials are increasingly stringent, and our materials expertise is increasingly relevant.

We have a smaller share and less mature position in these segments, however we generally have higher levels of differentiation with newer products, where we are developing options and scaling up. We have dedicated market specialists who face into these industries and ensure we address the needs of today, while developing new products and approaches for the needs of tomorrow.

Share of revenue



Faster growing

- Semiconductors
- Healthcare
- Clean energy + clean transportation

Total

Core

- Industrial
- Conventional transportation
- Metals
- ★ Petrochemical and chemical
- Security and defence
- Conventional energy

Total

31%
16%
14%
10%
6%
3%
80%

In these core markets, we are leading, or are among the market leaders. We have around a 20% share, with strong customer loyalty, a respected brand and deep application expertise.

- The **Industrial sector** is the largest component of our core. It is composed of the diverse customers who incorporate our carbon and ceramic materials and parts into their products and manufacturing equipment. For example, we supply wear parts for industrial pumps, components for metrology equipment, thermal insulation for power generation and heat recovery, and ceramic rollers for glass and tile manufacturing.
- **Petrochemicals** – we offer to operators, installers and technology licensors insulation design and a range of insulation products and fire protection solutions.
- **Metals processing** – this segment includes high-volume metallurgy such as aluminium, iron and copper, as well as lower volume metals such as zinc, titanium and gold. We provide insulation solutions as well as crucibles which hold liquid metals and provide flow control to metallurgists and furnace OEMs.

- **Defence and aerospace** – we supply various parts and subsystems. In aerospace, we supply cores for precision casting of engine parts and fire protection materials for flight data recorders.
- **Automotive** – we produce components and subsystems that we supply into internal combustion engine cars at multiple layers of the value chain. They include friction materials for brake pad suppliers, carbon brushes for manufacturers of electric motors and filters for airbag manufacturers.

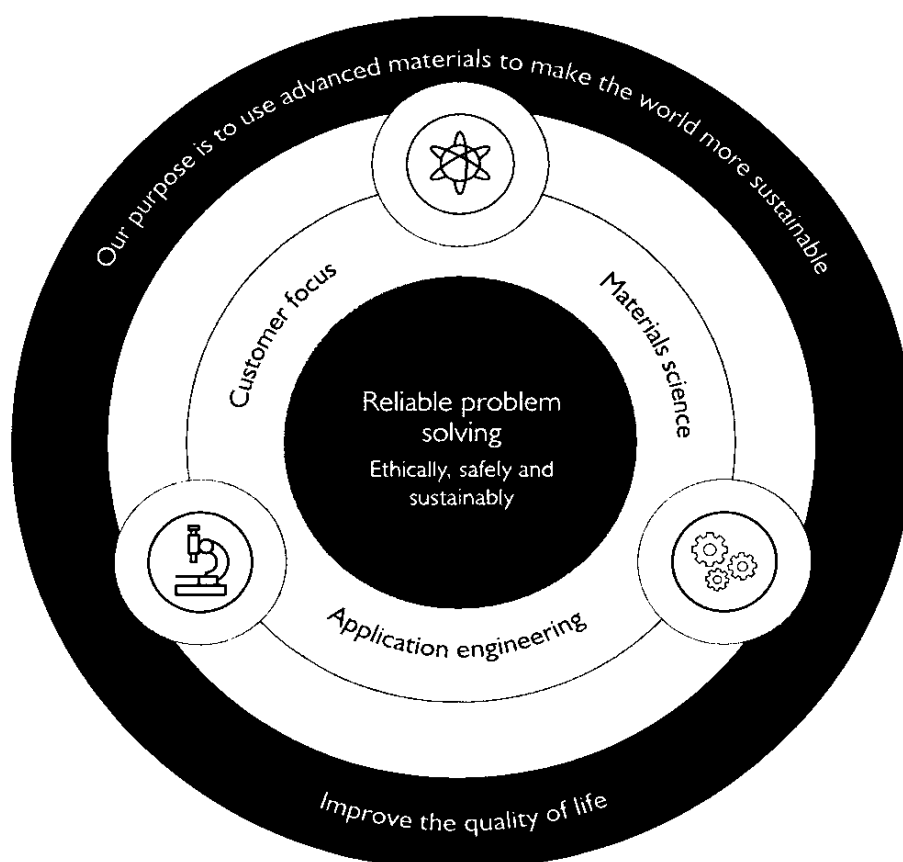
The common thread in all these markets is that we provide challenging technical features which are critical to our customers' products and/or processes.

Our strategy, in brief

We have a strategic framework that connects our purpose with our strategy, our distinctive competencies and our Morgan Code.

We have a strategy to make sure that we are the leaders in our field, with the customer and materials insight to apply our capabilities quickly and effectively.

Our strategy builds on our strengths and focuses the Group on scalable businesses in attractive markets, and on the development of three core capabilities.



Key



Materials science

We are an acknowledged leader in materials science for our chosen technology families.



Application engineering

We have built an understanding of the application of our materials science in our customers' products and processes, in order to provide maximum benefit through advanced application engineering.



Customer focus

Our success comes from aligning everything we do to focus on the customer.



Our purpose

Our purpose is 'to use advanced materials to make the world more sustainable and to improve the quality of life'. This purpose guides our actions.



The Morgan Code

A set of principles, supported by Group policies, which set out how we conduct ourselves in support of our people, our communities, our business partners and our shareholders.

Our purpose

To use advanced materials to make the world more sustainable, and to improve the quality of life. This purpose guides our actions: it underpins our work to reduce our environmental impact, informs how we treat our people, and ensures we fulfil our responsibility for good corporate governance.

We deliver on our purpose through the products that we make and the way that we make them.

- > We improve the quality of life by supporting medical diagnostics with our power tubes in medical scanners. Our feedthroughs are at the core of cochlear implants and our seals are used in blood pumps. These products transform people's lives.
- > Our products help keep people safe. We are proud to design fire protection in everything from cars to tunnels, and ships to oil platforms.
- > We design and manufacture our products to help customers save energy.
- > Our carbon brushes are integral to wind turbines and power generators and enable electrified rail transport. Our ceramic rollers are used to make thin-film solar panels, our insulation is used in solar towers and steam turbines, and our ceramic cores are used to make more efficient industrial gas turbines. These are all products which promote a more sustainable and environmentally secure future for our planet.

We have three execution priorities that are helping us deliver our strategy:

1. Big positive difference

We govern our business the right way, look after the environment, look after our people and operate to high ethical standards. This priority supports our purpose and our commitments on inclusion, treating people fairly, reducing waste, managing our water consumption, and reducing emissions.

→ Read more on [pages 20 to 21](#)

2. Delight the customer

We are tailoring our products, services and support offering to align with customer needs more closely. This is achieved through working in partnership with our customers at all stages of development to understand any technical challenges and by applying our materials expertise.

→ Read more on [page 22](#)

3. Innovate to grow

We are supporting our customers in both heavy industries and in green sectors to minimise their environmental impact. Our innovations are supporting the decarbonisation of industry. For example, our thermal engineers are innovating to design bespoke packages that accommodate higher temperatures as customers convert their processes from the combustion of natural gas to hydrogen.

→ Read more on [page 23](#)

Chief Executive Officer's review

"Our people showed great commitment in looking out for each other and delivering for our customers in this turbulent environment and I would like to thank them for their terrific contribution during 2022."



I am pleased with the progress we made as a Group in 2022. We saw rapid growth in a number of our end-markets as global economies recovered from the COVID-19 pandemic. We experienced a challenging operating environment with rapidly increasing inflation, an energy price shock in Europe driven by the Russian invasion of Ukraine, ongoing supply chain and labour shortages in many geographies, and pandemic-related absenteeism and disruption, in particular in China.

Sustainability

Our purpose is to use advanced materials to make the world more sustainable and to improve the quality of life. In 2021, we set out five long-term goals for our business together with intermediate goals for 2030.

1. A scope 1 and 2 CO₂ net zero business by 2050, with a 2030 goal of a 50% reduction in scope 1 and 2 CO₂ emissions. We have continued to migrate to carbon-free electricity across the Group with 49% of our power carbon-free by the end of the year. We are continuing to improve the efficiency of our gas fired kilns and have started to evaluate electrically fired options for some kiln types. During the year we reduced our absolute scope 1 and 2 CO₂ emissions by 8.2%.
2. Use water sustainably across our business, with 2030 goals of reducing water use and water use in high-stress areas by 30%. Our overall water usage increased by 11.6% during the year driven by volume increases, changes in mix to more water-intensive products and processes and some significant water leaks. A number of process and infrastructure improvements were completed during the year and we expect to see this reflected in our water usage in 2023. Our water usage in stressed areas decreased by 0.7%, showing the impact of improvement projects in our plants in high water stress areas.
3. Zero harm to our employees, with a 2030 goal of a lost-time accident (LTA) rate of 0.10. Our LTA rate was 0.28 (2021: 0.22), a worsening of our accident performance, in part reflecting a larger number of new employees in the business as we ramped volumes up. We are not satisfied with this and we are working hard to improve. We have a broad programme of work underway across the Group to improve our safety position and performance.
4. A workforce reflective of the communities in which we operate, with a 2030 goal of 40% of our leadership population being female. Our diversity position was unchanged over the year with 29% females in our leadership population. We implemented a number of changes during the year, including the establishment of three employee resource groups for women, veterans and the LGBTQ+ communities. We have also introduced training for hiring managers and we are standardising and modernising our parental leave policies, starting in the UK.
5. A welcoming and inclusive environment where employees can grow and thrive with a 2030 goal of a top-quartile engagement score. We completed our engagement survey in December 2022 and our engagement score was 53%, a 3 percentage point improvement over the 50% score in 2021. We have a lot of activity underway at a local level to improve, and we have a long way to go, but we are pleased to see an improvement year on year.

During the year we deployed our 'thinkSAFE' training in all of our plants. We increased the robustness of plant-level activities including start of shift briefings, safety tours, near miss identification and reporting and 5S (Sort, Straighten, Shine, Standardise and Sustain) and we put greater focus on cross-group learnings through safety shares and quarterly focus topics. Safety is our top priority and continues to receive a high level of focus throughout the organisation.

4. A workforce reflective of the communities in which we operate, with a 2030 goal of 40% of our leadership population being female. Our diversity position was unchanged over the year with 29% females in our leadership population. We implemented a number of changes during the year, including the establishment of three employee resource groups for women, veterans and the LGBTQ+ communities. We have also introduced training for hiring managers and we are standardising and modernising our parental leave policies, starting in the UK.
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In light of Russia's invasion of Ukraine, we took the decision to stop our trading activity with Russia in February of 2022.

"We are making great progress against our 2030 sustainability goals."

Group results

We delivered robust organic growth reflecting the good market conditions and the benefits of our strategy. Our focus on four faster growing markets (semiconductors, healthcare, clean energy and clean transportation) is showing results with 11.7% organic growth in those markets during the year. These four markets represent 19.6% of our revenues. Operating margins expanded with the drop through on the volumes and the remaining benefits of our 2020 restructuring programme coming through. Free cash flow was lower than the prior year reflecting increased capital expenditure and higher working capital primarily reflecting growth of the business and increased inventory holdings to mitigate supply chain risk.

Financial results

- > Group revenue in 2022 was £1,112.1 million, 17.0% ahead of the prior year at reported rates and 11.2% higher on an organic constant-currency basis
- > Statutory operating profit was £140.8 million, profit before tax was £131.6 million, earnings per share was 31.0p
- > Adjusted operating profit* was £151.0 million representing adjusted operating profit margin* of 13.6%
- > Group adjusted earnings per share* was 33.8p (2021: 27.2p)
- > Net capital expenditure was £57.4 million (2021: £28.1 million), with investment focused on health, safety and environmental improvements, investments in efficiency, select capacity expansion and improvements to the underlying infrastructure of the Group
- > Free cash flow* was £(46.9) million (2021: £66.2 million)
- Net debt* excluding lease liabilities* was £148.5 million, with a net debt* excluding lease liabilities to EBITDA* ratio of 0.8 times

Pension scheme

Over the last six years we have significantly improved the health and performance of the Group, improving growth rates and profitability, and substantially reducing liabilities. Continuing these improvements, we completed a payment of £67 million into our UK pension schemes at the end of

2022 to move those schemes to a fully funded position on a long-term objective basis. This eliminates the £17 million per year we were due to pay to the scheme over the next three years and gives us an expectation of modest or zero payments after 2025, and is an important step on the way to an eventual buyout of the scheme.

Investment proposition and medium-term targets

We held our first capital market event in nearly 10 years in December of 2022 during which we laid out our investment proposition and the medium-term targets for the Group. There are four reasons to invest in us:

1. We are well positioned in attractive, high-growth markets
2. We have leading, differentiated market positions
3. We provide sustainable solutions to support the energy transition
4. We are a resilient Group delivering attractive through-cycle returns

In support of our investment proposition, we have set out a clear through-cycle financial framework consisting of:

- > Organic revenue growth* of 3%-6% pa
- > 12.5%-15% adjusted operating profit margin*
- > Return on invested capital* of 17%-20%
- > Leverage of 1-2 times with the combination of organic growth, M&A and shareholder returns to deliver enhanced EPS growth

This is a credible set of goals, and an attractive investment proposition for the Group, consistent with the performance we have delivered in recent years, enhanced by M&A and/or shareholder returns given our strong balance sheet and the substantially de-risked pension position.

Cyber incident

In early January 2023 we experienced a significant cyber attack on our business. While the attack was detected relatively quickly, and we were able to limit the damage through rapid compartmentalisation of the network, the attack resulted in the encryption of a number of our applications and data storage systems, and damage to network devices.

Following the incident, we have been progressively restoring our networks and systems including rebuilding of certain applications and file systems where they were not recoverable. We have engaged a number of specialist organisations to help us with the restoration and with wider network security. We released a statement to the stock market on 7 February laying out the expected financial consequences of the incident including one-off costs of around £15 million for the recovery of systems and specialist support, and a 10%-15% reduction in operating profit in 2023, compared with analysts' consensus at the start of the year, as a result of inefficiencies in our plants from the cyber disruption.

In addition to restoring our systems and infrastructure, we are also accelerating our IT modernisation programme to improve our cyber defences and to provide greater resilience in the event of a subsequent attack.

We delayed the publication of our full year results for 2022 to 28 April 2023 to allow rescheduling of the audit process.

Outlook

During the first quarter we continued to experience good levels of demand in most market segments. Looking at the whole of 2023, we are expecting slowdowns in the large industrial economies as inflation and the impact of central bank tightening hit consumer and business activity. We expect some improvements in China following the end of COVID-19 restrictions and that may support growth in South Korea and Japan, and we expect good growth in India. We expect to make further progress in our faster growing markets given the strong underlying demand drivers and the investments we have been making there.

We expect inflation to reduce as we go through the year. We will continue to pass on inflation in higher pricing to our customers and expect our pricing and continuous improvement efforts to more than offset inflation as they have in prior years.

Pete Raby
Chief Executive Officer

Strategy in action

Big positive difference

In 2022, we have made a big positive difference by serving our communities, and by driving inclusion and diversity.

Our goal is to have a positive impact on the communities we serve, from supporting job creation and skills advancement to reducing energy and water consumption at our plants.

In 2022, we have:

- Championed involvement at a local level, looking to understand each community's priorities and concerns. Our people made a big positive difference. For example, our Stourport, UK, team supported a local primary school with the design and build of a unique eco-friendly learning windmill, in collaboration with pupils from the school.
- Committed time to sustainability activities. For example, our Singapore team carried out a park clean up in their local area, demonstrating their support for creating a cleaner and improved environment for everyone in the local community.
- Supported the next generation and STEM activities. For example, our Saint Marcellin, France, plant welcomed students from the Lyon CESI engineers school, to complete internal audits on site. Students had the opportunity to apply their audit knowledge to real life situations, with the support of our local team.
- Undertaken a number of water conservation projects to reduce water usage, especially in high water stress areas. Our Gujarat, India, team commissioned a new on-site waste water treatment plant following a water audit to identify opportunities to reduce, reuse and recycle water at the site. The treatment plant has led to an impressive 15 kl/day of water recycling capacity.

Greater diversity makes sense for our business, our people and the wider communities we serve. That is how we make a 'big positive difference'.



Our Singapore team completed a park clean up in their local area.

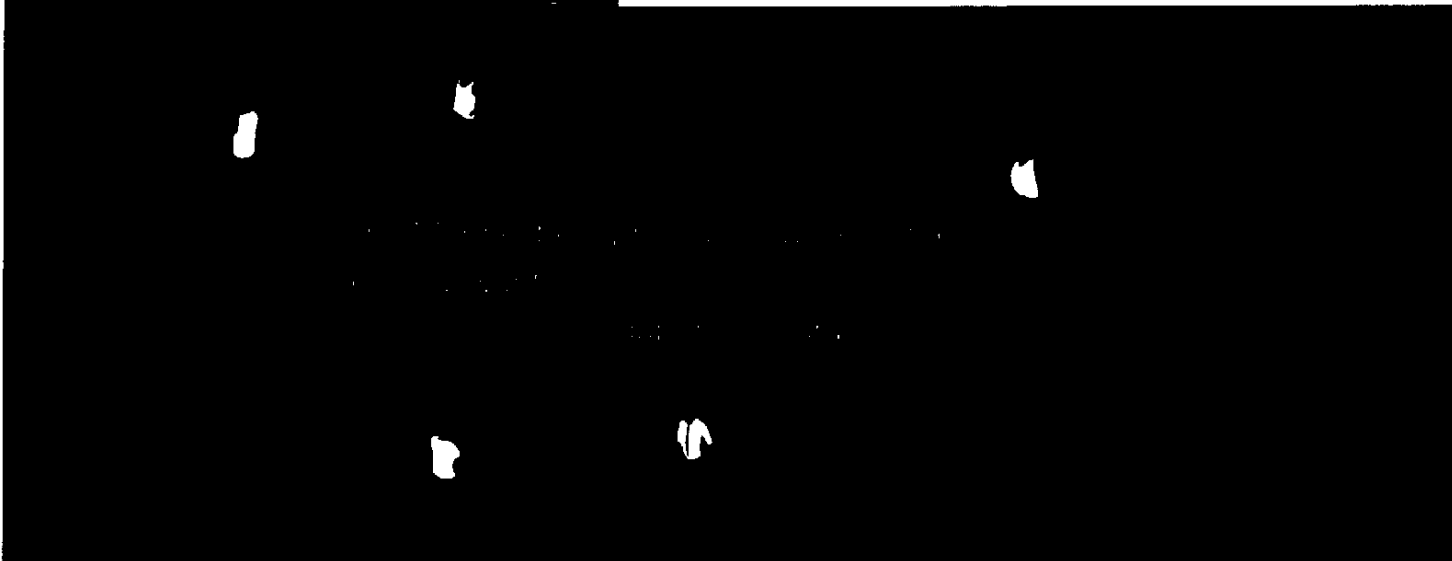


Our Gujarat team are reducing, reusing and recycling water.

We want our leadership teams to be more representative of the communities that we serve.

In 2022, we:

- > Launched our new licence to recruit programme, supporting our hiring managers through diversity training. We implemented more diverse hiring panels and created more inclusive language for our job adverts to have a broader appeal to diverse candidates.
- > Developed a new DE&I framework which helped us launch three new employee resource groups (ERGs) supporting women, veterans and our LGBTQ+ colleagues. These ERGs in turn held virtual and in-person events marking important dates on the diversity and inclusion calendar and opening direct lines of communication to leaders on key topics.
- > Started to develop a modern and appealing inclusive employer brand, with a reward and benefits programme to attract and retain talented global leaders.



2

Delight the customer

We seek to build trusted partnerships with our customers, as they have come to expect that Morgan can help solve their problems and grow their businesses.

The more we understand about their business, their market and their technical challenges, the more effective we can be at providing them with a solution.

This means we collaborate closely at the technical level to ensure that our products pass any customer's stringent and extensive performance tests. It also means we are often specified as the supplier for spare parts and maintenance during the lifespan of products.

During 2022, we have made great progress in supporting our customers in utilising silicon carbide in power electronics. One of our customers in the silicon carbide space recently turned to us for help. Given the sharp growth of the industry, not all their suppliers were ready to grow with them and our customer faced the potential of a major supply shortage.

Our dedicated team was quick to establish a new product and service offering, and within three months started to supply that new product to our customer. We worked hand in hand with the customer to clearly understand their product requirements and rapidly prototype the product through design testing cycles, and we delivered a precision manufactured product to meet the immediate need. We are now scaling the production platform to grow with our customer.

Long-time and newer customers appreciate how Morgan delivers great materials science, problem-solving and operational capabilities to support their business.

Our success comes from aligning everything we do, across every role, to focus on the customer. This is how we are becoming a partner of choice.



Innovation is at the heart of our business. Whether we are innovating in our faster growing market segments, or supporting the changing requirements through our energy savings solutions for more traditional industries, our materials innovations enable rapid change.



3

Innovate to grow

With more than 400 scientists and engineers across the Group, our people are busy developing new materials and applications.

Our deep expertise in carbon and ceramics is maintained and strengthened through our ongoing process of research and development, an area that we invest approximately £30 million in each year.

Each business unit has a clear strategy and a technology roadmap that supports our customers and fulfils our purpose to make the world more sustainable. Today, our innovative products and solutions are helping customers to reduce their carbon emissions.

We manufacture precision ceramic cores that are used to cast turbine blades for aero engines and industrial gas turbines. Our customers come to us for their most demanding applications, for example when they need to hold very fine features on small components. And these demanding applications arise as the latest generation of engines need to run hotter to be more efficient. Our cores enable these new engine technologies.

We produce some of the leading brush grades for wind turbines, offering longer lifetimes than our competitors. In addition to enabling wind technology, we also drive lower maintenance activity, and costs, for wind farm operators, further reducing the CO₂ footprint.

In the electrified rail market, we produce a range of collector strips and carbon shoes to connect the train to the power cable or rail. In the metro market in China, we have developed a wide range of high-performance material grades to perform in the varied climatic conditions across China. Our products directly enable electrified rail, and offer superior lifetimes.

Our products are widely used in the semiconductor manufacturing process. We are seeing rapid growth in power electronics applications for electric vehicles and grid power conditioning, and we are directly enabling clean transportation and the renewable grid.

Through their life, our products typically save 10s or 100s of times the CO₂ emitted in manufacture.

Stakeholders

Our stakeholders are key to the delivery of our strategy. Below we set out the many ways we engage with stakeholders and why their engagement matters.

Investors

Those who own shares or wish to own shares in Morgan Advanced Materials

Our capital markets event brought to life our investment proposition and enabled investors to hear directly from each of our global business unit presidents.

→ Find out more: morganadvancedmaterials.com/CapitalMarkets

Why our investors are important to us

Our investors provide capital for our business. We value this commitment and want to ensure investors have a deep understanding of our business, our strategy, the market environment and our governance arrangements.

It is important to us that we foster an open and transparent relationship to enable investors to make effective investment decisions.

How we engage with investors

We engage with our investors directly through both the formal presentation of results and investor roadshows.

In 2022, we also held a capital markets event to talk more in depth with our investors about our four faster growing market segments.

We also use these opportunities to talk about the future and the longer-term plans for our business.

When asked, we complete investor questionnaires which give a further insight into key aspects of our business performance.

We provide a dedicated section on our website which offers timely information on how we are performing against our stated ESG goals.

We publish a yearly sustainability and responsibility report that details the progress we are making against our ESG targets, including full disclosure of metrics and ratings linked to environmental performance.

What matters to our investors?

- Capital gain through share price appreciation
- Capital return via dividends
- Profitability and business growth potential
- Quality of governance
- Responsibility and fairness
- The protection of the environment through the use of more sustainable materials and the reduction of carbon emissions, reduction in water use and improved waste management
- Demonstrating our 'good governance' approach throughout our decision-making
- Demonstrating the positive contribution we make to society through the employment opportunities we provide, through our interactions with the communities where we have our sites and through the support we provide our people

To find out more about investing in Morgan, please visit our website: morganadvancedmaterials.com/Invest



Customers

Those who have purchased our products or will do so in the future

Why our customers are important to us

We aim to deliver great service so that our customers feel valued and choose us as their 'go-to' supplier. To do this effectively we need to listen to and engage with them.

We develop relationships with our customers based on mutual trust and constructive dialogue.

We have a diverse customer base across the globe, which we serve directly, and also through joint venture partnerships and local suppliers.

We are seeing growing demand for advanced materials as customers push the boundaries of technology.

We have been working closely with our customers to develop new solutions for their next generation of products and processes.

We are providing products that are differentiated from those of our competitors.

How we engage with customers

The relationship with our customers starts from the moment they look to find out about our products. We keep customers updated on the progress of our innovation and new product applications through digital and physical channels.

Our sales and service colleagues also keep customers updated on the progress of manufacturing; sometimes working alongside the customer to fine-tune the product and production process.

We also gather key feedback from customers about the service we provide and use this to help improve relationships and secure future business.

What matters to our customers?

- Reliable and consistent service
- Quality products
- Product and process innovation
- Ability to solve complex problems
- Application engineering capabilities
- How we source our raw materials
- Environmental impact of the products we produce

Suppliers

Those from whom we purchase goods or services

Why our suppliers are important to us

We believe in an open and collaborative business approach and seek opportunities for innovation. This collaborative approach is particularly important to ensure a more sustainable supply chain.

We aim to use all our resources as efficiently as possible, minimising the environmental and social impact on ourselves, our suppliers, our customers and the world around us.

How we engage with suppliers

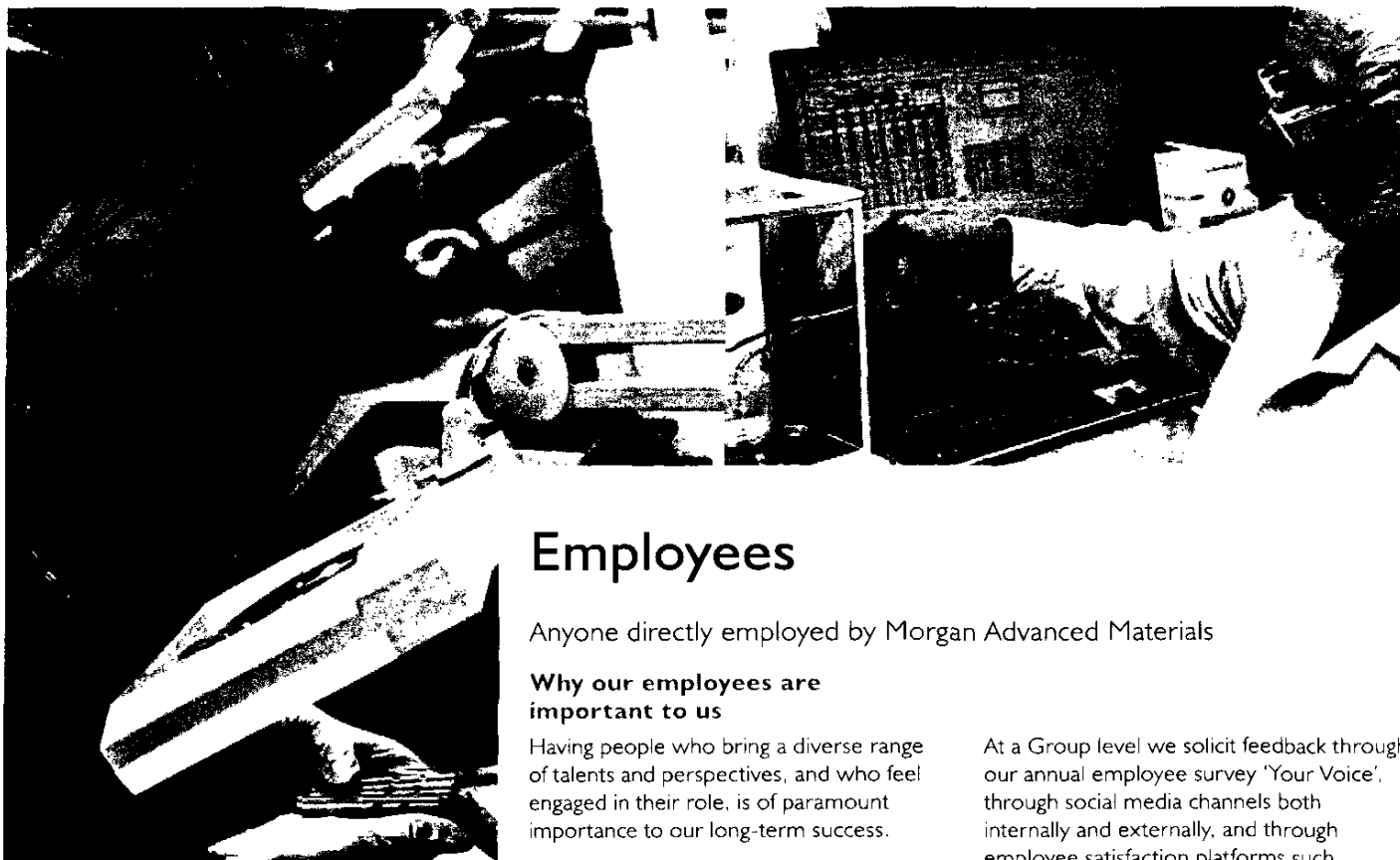
We treat our suppliers as an extension of our business and therefore expect them to uphold the same high standards we set for ourselves. To achieve this, we are in constant dialogue with our suppliers to address any issues and maintain productive relationships.

We publish a Supplier Code of Conduct which we expect our suppliers to sign up to and we have regular check points to ensure that this is adhered to.

What matters to our suppliers?

- Human rights
- Environmental and climate impact
- Quality management
- Cost-efficiency
- Ethical trading policies and sustainable sourcing
- Developing long-term relationships





Our people contribute to the culture and are the driving force behind our success.

Employees

Anyone directly employed by Morgan Advanced Materials

Why our employees are important to us

Having people who bring a diverse range of talents and perspectives, and who feel engaged in their role, is of paramount importance to our long-term success.

Our employees have been instrumental in making Morgan Advanced Materials the company it is today. They are key to driving the brand forward and ensuring it remains relevant in the future.

We work to attract, develop and retain the right people and ensure they are in the right roles.

How we engage with employees

The Board is committed to fostering a safe, ethical and inclusive workplace and spends time engaging with a diverse cross-section of employees, as well as monitoring and assessing the Group's culture. These insights help inform the Board's discussions on health, safety and environmental matters, in monitoring progress in relation to embedding ethical conduct and implementation of the Morgan Code, and in strengthening the capabilities of our leaders and teams.

At a local level, leadership teams use feedback from surveys, focus groups, pilot groups, manager one-to-one conversations and employee communications to shape engagement activities with employees.

At a Group level we solicit feedback through our annual employee survey 'Your Voice', through social media channels both internally and externally, and through employee satisfaction platforms such as Glassdoor.

At all levels we engage on subjects important to our people including mental health at work, safety, the environment, developing a diverse and inclusive culture, and the important role of community and charity.

In 2022, we introduced three new employee resource groups (PRISM, Women@Morgan and Military@Morgan) to give voice to those who may feel underrepresented. These ERGs are a key tool in understanding the needs of our people and help to shape thinking and policy changes.

What matters to our employees?

- ✓ Meaningful roles linked to our purpose
- Flexible working
- ✓ Focus on wellbeing
- Career development
- ✓ Recognition and competitive compensation

A safe, ethical and inclusive working environment

Pensioners and pension trustees

Why our pensioners and pension trustees are important to us

After more than 160 years in business, we would not be as strong as we are today without the combined efforts of all those who went before. By keeping our pension commitments, we honour the hard work and dedication of both current and past employees.

How we engage with our pensioners and pension trustees

We engage with both current pensioners and those yet to retire through regular pension communications in conjunction with our pension trustees.

New employees receive communications about our pension schemes in a bid to promote financial wellbeing.

What matters to our pensioners and pension trustees?

The commitment of the Company to ensure the pension scheme is fully funded and any deficit reduction plan is maintained

Communities

Those who live or operate in areas where we work – for example, residents, businesses and charities

Why our communities are important to us

Our people live and work within wider communities and relationships with these communities are key in supporting our business for the future.

Our relationship with local communities is mutually beneficial, offering us the ideal place to find the talent of tomorrow, while enabling our people to get involved in activities which directly benefit these communities.

We seek to build trust by understanding the issues core to our communities, operating responsibly and addressing concerns that are material to them.

We aim to create long-term relationships with the communities where we operate, that drive positive change and help build a more sustainable future.

How we engage with communities

Our aim is to have a positive impact on the communities we serve, from supporting job creation and skills advancement, to reducing energy and water consumption at our plants. All our efforts and engagements are governed by the Morgan Code, our purpose and our policies on the environment.

As our sites and operations are spread across the globe, we have the opportunity to work with many communities. We pride ourselves on engaging at a local level and look to understand each community's priorities and concerns. We also support our employees' involvement in their local community, from charity giving to local fundraising, and from volunteering to health and wellbeing initiatives.

What matters to our communities?

- > Our commitment to the local environment
- > Our conduct as a socially responsible organisation
- > The positive impact we can have on the community living and working around us
- > Employment opportunities

We aim to have a positive impact on the communities we serve, from supporting job creation and skills advancement to reducing energy and water consumption at our plants.



Section 172(I) statement

We believe that considering our stakeholders in key business decisions is not only the right thing to do but is fundamental to our ability to drive value creation over the longer term and deliver on our purpose: to use advanced materials to make the world more sustainable, and to improve the quality of life.

It is not always possible to provide positive outcomes for all stakeholders and the Board sometimes has to make decisions based on balancing the competing priorities of stakeholders. Our stakeholder engagement processes enable our Board to understand what matters to stakeholders, and to consider carefully all the relevant factors and select the course of action that best leads to high standards of business conduct and the success of Morgan in the long term. The principles underpinning s.172 of the Companies Act 2006 are not only considered at Board level, they are part of our culture. They are embedded in all that we do as a company.

The differing interests of stakeholders are considered in the business decisions we make across the Company, at all levels, and are reinforced by our Board setting the right tone from the top. All of the Board's significant decisions are subject to a s.172 evaluation to identify the likely consequences of any decision in the long term and the impact of the decision on our stakeholders. Details of our key stakeholders, how we have engaged with them during the year and the outcomes of that engagement, are set out on pages 24 to 27. Engagement activities specifically carried out by the Board collectively and individually can be found on page 73.

In performing their duties during 2022, the Directors have had regard to the matters set out in s.172. You can read more on how the Board had regard to each matter, during the year, as follows:

Key decisions in the year

Reducing the pensions burden

At the Capital Markets Day in December 2022, we announced that we had reached agreement with the trustees of our UK Defined Benefit Pension Schemes to make an accelerated contribution of £67 million. As part of their arrangement with the Company, the trustees have agreed to move to full hedging of inflation and interest risk. This will benefit both the Schemes and the Company by significantly reducing the volatility of valuations in the future, and represents a significant milestone towards being able to secure member benefits by means of annuities with insurance companies.

The benefits to the Company will be:

- Immediate improvement to free cash flow, with a reduction in cash pension contributions of £17 million per annum for at least the next three years, and modest or zero contributions thereafter
- Reduced volatility, with the likelihood of a material deficit arising at future triennial revaluations substantially reduced
- Prudent approach to hedging, with leverage on the scheme's LDI portfolio targeted below 2.0x.

How the Board reached its decision

When considering the proposals to accelerate the contribution to the schemes, the Board considered the Company's obligations in relation to funding the schemes and the benefits of de-risking of the schemes, in light of the prevailing macro-economic conditions.

The Board met with the Group Pensions Director on two occasions to consider the proposal, who in turn met with the trustees of the pension schemes, to ensure that their views were taken into consideration.

Stakeholder considerations

Pensioners and pension trustees – Accelerating the contribution benefits pensioners and deferred members as it represents a significant milestone towards being able to secure member benefits by means of annuities with insurance companies. In addition, the Board considered the likely impact of reducing the deficit and de-risking the schemes, thereby enhancing the resilience of the schemes to changing market scenarios which would benefit pensioners and deferred members in the longer term.

Shareholders – The benefits to shareholders include the improvement to free cash flow and the removal of uncertainty and risk linked to pension deficit. This step also enhances future flexibility for capital allocation, enabling optionality for future cash return to shareholders.

Lenders/providers of debt – The impact of funding the schemes on whether the Company remained within the financial covenants agreed with lenders.

Outcome and impact of the decision

The Group has had a collaborative relationship with the pension trustees. With the accelerated funding and prudent approach to hedging, the deficit has fallen, and the contributions have been reduced by £17 million per annum for the next three years in line with the Company's proposal to achieve funding on a low dependency basis.

Renewal of the revolving credit facility

We also announced in December 2022 that the Group has secured a new five-year revolving credit facility (RCF) of £230 million that replaces our existing RCF that was due to mature in 2023. The RCF incorporates sustainability-linked performance targets which align with our ambitious sustainability plans.

How the Board reached its decision

When considering the proposal, the Board considered the benefits of securing the facility early as a contingency in case of worsening market conditions, and to ensure continued access to funding.

Stakeholder considerations

Shareholders – By securing the RCF early, the Company was able to navigate the deterioration in the general credit and macro-economic background during 2022 and ensure the Group continues to meet its going concern requirements.

Lenders/providers of debt – The need to maintain mutually beneficial relationships with existing lenders and establish similarly beneficial relationships with new lenders.

Community and environment –

By incorporating sustainability-linked performance targets which align with our ambitious sustainability plans, we further demonstrate our commitment to our ESG goals.

Outcome and impact of the decision

The renewal of, and increase in, the RCF provides the Group with additional financial flexibility for the future.

Approval of a progressive dividend policy

We also announced that we would enhance regular returns via a progressive dividend policy, by growing the regular dividend through the cycle with adjusted earnings cover of circa 2.5x, and provide additional returns of surplus capital to shareholders as appropriate.

How the Board reached its decision

When considering the proposals to resume the payment of dividends for FY22 and adopt a progressive dividend policy, the Board considered cash generation, the performance of the underlying business and the long-term impact of paying the dividends on the liquidity and solvency positions. The Board also considered the impact of the dividend decisions on expectations relating to the dividend policy.

Stakeholder considerations

Shareholders – Shareholders' expectations in relation to the payment of dividends, both from a capital return perspective and as a signal of future performance.

Lenders/providers of debt – The impact of paying dividends on whether the business remained within the financial covenants agreed with lenders.

Employees – For colleagues who participate in the Group's employee share schemes, the payment of dividends enabled returns for those colleagues.

Outcome and impact of the decision

Following due consideration of all the matters set out in s.172, the Board recommended a full-year dividend of 12.0p per share, with payment of a final dividend of 6.7p to shareholders in July 2023 and an interim dividend of 5.3p in November 2022. This recommendation reflected the Group's resilient performance for 2022 and the Board's confidence in the Group's structural growth drivers into the future. The Board concluded that it was in the long-term interest of the Company to proceed with the payment of the dividends.

Non-financial information statement

The information which follows is intended to explain our non-financial information, the relevant Group policies, the due diligence processes we follow to embed these policies and their effectiveness.

Our business model on pages 12 to 13 provides an insight into the key resources and relationships that support the generation and preservation of value within Morgan.

Policies

Employees

Our Environmental, Health and Safety (EHS) Policy is designed to promote a culture of zero harm for our employees, contractors and visitors and eliminate and control health risks proactively.

Detail of our safety programme and safety performance is set out on pages 34, and our EHS Policy is highlighted on page 37.

The Group has an overarching policy designed to attract, develop, recognise/reward, retain and engage talented people and support an inclusive, safe and ethical workplace. The Group policy is supplemented by a wide range of detailed people policies specific to the business or jurisdiction.

Environmental matters

Our EHS Policy sets out the Group's commitment to the protection of the environment in the communities where we operate, work and live. The Policy sets out our intention to reduce energy and water use, reduce our dependence on natural resources, protect biodiversity and aim to maximise the positive impact of our products. Additional information is set out on pages 32 to 33, and page 36. The full policy is published on our website morganadvancedmaterials.com/EnvironmentalPolicy.

Social matters

Our sites currently take ownership of local community engagement, through a variety of initiatives, to support our strategic priorities and benefit local communities, for example educational outreach and wellbeing support. We are working to consolidate and align local policies and practices where appropriate, and to provide a framework for community engagement that recognises our global presence alongside local needs.

Human rights

Our Human Rights Policy establishes our commitment to protect the human rights of everyone who works for the Morgan Group and all those who have dealings with us. The Policy is supplemented by the Morgan Code.

Further information on our approach to human rights is contained on pages 36 to 37 and published on our website morganadvancedmaterials.com/HumanRights.

Anti-bribery and anti-corruption

The Morgan Code; Bribery, Corruption & Facilitation Payments Policy; Gifts & Entertainment Policy and Donations & Sponsorships Policy make up Morgan's key anti bribery and corruption policies. Together these policies seek to prevent bribery and ensure that our business is undertaken in an ethical manner and in compliance with all applicable anti-bribery and anti-corruption laws. More information on the policies and processes to prevent bribery and corruption are contained on pages 37 and 47 and published on our website morganadvancedmaterials.com/EthicsCompliance.

Due diligence in pursuance of policies	Outcome of policies and impacts of activities	Related principal risks
<ul style="list-style-type: none"> > Audits under the EHS programme > Annual self-certification process > 'Speak Up' hotline > All other applicable regulatory reporting <p>A detailed description of the methods used to support the Group's people policies is set out on pages 36 to 37 and published on our website morganadvancedmaterials.com/ESGPolicies.</p>	<p>Our KPI in relation to Lost-Time Accident Frequency is set out on page 4.</p> <p>Our safety performance for 2022 is set out on page 34.</p> <p>Our workforce composition and information on gender diversity is set out on page 34, and in our 2022 Gender Pay Gap Report morganadvancedmaterials.com/GenderPayGap.</p>	<p>See page 42 of the Risk Management section: environment, health and safety risk.</p> <p>The attraction, retention and engagement of people is not considered a principal risk.</p> <p>An emerging risk relates to potential difficulties in recruiting to replace an ageing direct workforce in some parts of the business, particularly in remote locations.</p>
<ul style="list-style-type: none"> > Data gathering on greenhouse gas (GHG) emissions > Our submission to the Carbon Disclosure Project (CDP) > Annual self-certification > Our 'Speak Up' hotline > Internal audit processes > We have engaged ERM CVS to conduct third-party data assurance of the environmental metrics for 2022 	<p>See pages 4 to 5 and pages 32 to 33 for information on our GHG emissions, and progress in 2022 in respect of CO₂e intensity, total energy use, water use and withdrawal. Additional details are available from our 2022 Full Year Sustainability and Responsibility Report morganadvancedmaterials.com/SRReport.</p> <p>Minimising our environmental impact helps to protect the environment and enables us to attract talented employees and to win new business from customers.</p>	<p>See page 42 of the Risk Management section: environment, health and safety risk.</p>
<ul style="list-style-type: none"> > Activities are reported internally, including on our social media platforms 	<p>Our business and our employees are more deeply connected to our local communities.</p>	<p>Although not a principal risk, social risk, and specifically potential difficulties in recruiting to replace an ageing direct workforce in some parts of the business, particularly in remote locations, is an emerging risk.</p>
<ul style="list-style-type: none"> > Monitoring of compliance with the Morgan Code > Due diligence processes associated with new suppliers and our supply chain > Publication of our Modern Slavery Statement on our website > More information is contained on pages 36 and 37 	<p>No incidents of human rights abuse or modern slavery were identified during 2022.</p>	<p>See page 47 of the Risk Management section: compliance risk.</p>
<ul style="list-style-type: none"> > Detailed procedures in place designed to prevent bribery and corruption, supported by explanatory manuals and the ethics and compliance programme of work > Regular training for relevant employees is undertaken > Any reports of breaches in compliance are investigated and reported to the Audit Committee, and appropriate action is taken > A description of the control environment, the internal audit function and the processes for the review of investigations by the Audit Committee are set out in the Report of the Audit Committee on pages 79 to 85. 	<p>During the year more than 97% of relevant employees participated in the Group's ethics e-learning programme, which included specific training modules on bribery and corruption.</p> <p>There were 162 reports made to the Group's whistleblowing hotline during 2022, including reports on concerns relating to potential unethical conduct. The reports varied in their nature and materiality, with certain matters requiring the support of external advisors and giving rise to disciplinary action against employees for breaches of Group policies.</p>	<p>See page 47 of the Risk Management section: compliance risk.</p>

Environmental, social and governance goals

Greenhouse gas emissions

Morgan's greenhouse gas (GHG) emissions, such as carbon dioxide (CO₂), are mostly generated by the combustion of fossil fuels at various stages of our manufacturing processes. We track these using a reporting methodology based on the internationally recognised Greenhouse Gas Protocol. This stipulates the source for the global warming potential (GWP) rates that we use to convert non-carbon dioxide emissions into the standard measure of carbon accounting, i.e. carbon dioxide equivalents (CO₂e).

Our sustainability strategy includes actions to reduce GHG emissions and combat climate change. As public concern grows, more customers are asking about our GHG emissions as part of the manufacturing process. The increasing demand for low-carbon products and processes, and the need to consider the effects of climate change in general, have had an impact on our long-term strategy.

The composition of our carbon footprint is shown in the table below.

Metric tonnes (MT) CO ₂ e	2015	2020	2021	2022
Scope 1	205,570	116,552	122,817	121,989
Scope 2 ²	137,124	160,126	107,070	89,115
Total³	342,694	276,678	229,887	211,104
Biogenic	1,368	501	877	978
Total Energy Use (GWh)	1,222	994	1,067	1,058
Intensity (MT CO₂e/£m²)	391	304	242	190

1. Total scope 1 emissions were calculated from the addition of emissions from fuels, refrigerants and other process emissions. Carbon emission factors are used to convert energy used in our operations to emissions of CO₂e. Carbon emission factors for fuels are provided by the International Energy Agency (IEA). Process emissions disclosed (4,516 tonnes, or circa 3.7% of scope 1) in 2022 rely on historical calculations that could not be evidenced for assurance purposes. We report our emissions with reference to the latest Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.
2. Carbon emission factors for grid electricity are calculated according to the 'location-based method' and 'market-based' where received. The location-based method reflects the average emissions intensity of the grids on which energy consumption occurs (using mostly grid-average emission factor data). In 2022, the value of scope 2 GHG location-based only emissions is 167,235 tonnes.
3. Total emissions include scope 1 and scope 2 only. Biogenic emissions are treated as carbon neutral and reported separately.
4. For manufacturing, we have selected an intensity ratio based on sales (on a constant currency⁴ basis). This aligns with our longstanding reporting of manufacturing performance. Emissions from the combustion of biogenic fuels (such as biomass and coffee husks) within our operations are reported separately from other scope 1 and 2 emissions, as recommended by the GHG Protocol, and are excluded from our intensity ratio calculation. The data also excludes scope 3 emissions and emissions from Company-owned and leased vehicles.

In March 2021, we set stretching targets to improve our environmental, social and governance (ESG) performance and become a more sustainable business. We take these commitments seriously and have plans in place to deliver against them in the coming years, making a step change in our performance.

Environment

At Morgan Advanced Materials we are committed to a sustainable future. Our aim is to ensure that our products and manufacturing processes are designed, built and managed in a way that enhances their value to society and our environment.

The information provided is a summary of progress to date. Further details can be found in our Sustainability and Responsibility Report 2022 – [morganadvancedmaterials.com/SRReport](#)

Morgan's aspirations and 2030 goals



A CO₂ net zero business by 2050.

- > By 2030, a 50% reduction in scope 1^{1,2} and scope 2³ CO₂ emissions.

2022 progress and performance

- > 2022 Total GHG emissions (tCO₂e) is **211,104 tonnes**; which is an 8% decrease over 2021 levels and a 38% decrease over 2015 values
- > 2022 scope 1 GHG emissions (tCO₂e) is **121,989 tonnes**, which is a 1% decrease over 2021 values and a 41% decrease over 2015 values
- > 2022 scope 2 GHG emissions (tCO₂e) is **89,115 tonnes**, which is a 17% decrease over 2021 values and a 35% decrease over 2015 values
- > Achieved a "B" management score for Climate Change from CDP recognising we are taking co-ordinated action on climate issues

What's next

- > Embedding the decarbonisation roadmap to 2050 across the business. Ensuring the right actions are being taken to support our near-term and long-term goals
- > Awaiting validation and approval of our submitted GHG reduction targets from the Science Based Targets initiative (SBTi), in line with our 2030 direct GHG emission reduction commitments
- > Continue to build our green energy (electricity consumption) portfolio to 49% of total electricity in 2022
- > Continuing scope 3 GHG emissions screening and inventory development work

1 Scope 1 includes "direct emissions," which come from sources owned or controlled by the Company, from the stationary combustion fuel sources at each site to generate heat or energy.

2 Total scope 1 emissions were calculated from the addition of emissions from fuels, refrigerants and other process emissions. Carbon emission factors are used to convert energy used in our operations to emissions of CO₂e. Carbon emission factors for fuels are provided by the International Energy Agency (IEA). Process emissions disclosed (4,516 tonnes, or circa 3.7% of scope 1) in 2022 rely on historical calculations that could not be evidenced for assurance purposes. We report our emissions with reference to the latest Greenhouse Gas Protocol Corporate Accounting and Reporting Standard

Morgan's aspirations and 2030 goals



Use water sustainably across our business.

- > By 2030, a 30% reduction in water use in high and extremely high stress areas.
- > A 30% reduction in total water usage.

2022 progress and performance

- > For 2022, total water withdrawal is **1.93 million m³**; which is a **12% increase** over 2021 levels and **17% decrease** over 2015. The negative trend towards water withdrawal is due to increase in production demand and a few major water leak incidents across the business
- > In 2022, water intensity is measured at **1.74m³/£000**, which is higher than 2021 (1.82 m³/£000)
- > Total water withdrawal in high water-stressed areas⁴ is **1% lower** than 2021
- > Achieved a "B" management score for Water Security from CDP recognising we are taking co-ordinated action on water issues

What's next

- > Investing in CAPEX projects towards water savings across our global sites. This water saving will involve various methods from rainwater harvesting to wastewater recycling
- > Commencing a programme of water reduction and leak detection across our production sites to help combat some of the issues identified in 2022

3 Scope 2 encompasses "indirect emissions" (the result of Company activities occurring at sources owned or controlled by another company) associated with the production of purchased electricity. Scope 2 emissions physically occur at the facility where electricity is generated. Scope 2 reported includes market-based and location-based factors. Value for scope 2 GHG location-based only emissions is 161,235 tonnes

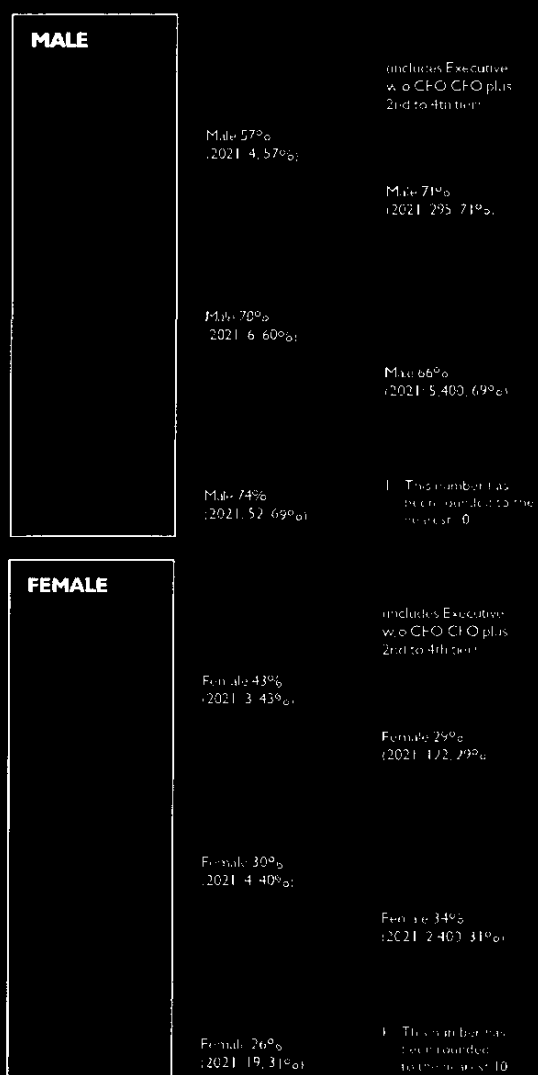
4 Water stressed areas include countries Spain, Italy, Turkey, Mexico, India, The United Arab Emirates, Argentina, Australia and the state of California, USA.

Social

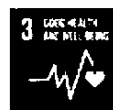
Our people contribute to the culture and are the driving force behind our success. In return we aim to be a caring organisation where everyone feels valued and appreciated.

Our key principle is that it is not just what we do, but how we do it that is important. This means plans being agreed and people having support and resources to work to and how we engage our stakeholders.

Source: Morgan Group, 2022



Morgan's aspirations and 2030 goals



Zero harm to employees.

- > By 2030, a 0.10 lost-time accident rate

2022 progress and performance

In 2022, our lost-time accident rate was 0.28. This is an improvement of 37% against our 2015 baseline of 0.45, but a worsening of 27% compared with last year (0.22), in part reflecting a larger number of new employees in the business as volumes increased.

Throughout the year we focused on increasing the use of our Don't Walk By (DWB) hazard identification/ good practice reporting system, resulting in over 30,000 submissions and a corrective action closure rate of 95%.

We spent time in 2022 building the caring culture across our business:

- > Our 'thinkSAFE' ambassadors delivered our cultural improvement safety commitment workshops to more than 9,000 employees
- > Our positive employee behaviours and practices were also recognised over 2,000 times
- > In Q2, Earth Day was celebrated across the organisation with activities focused on protecting our planet
- > We launched a refresh of our 'take 5 for safety' process that helps our employees think through the risks before undertaking a task

What's next

In 2023, we are:

- > Implementing 'EHS 360', a stand-alone EHSS reporting system to improve dynamic data and consolidate reporting platforms
- > Making ergonomic improvements at several sites across the organisation
- > Continuing our monthly and quarterly ESG topics
- > Continuing our 'thinkSAFE' workshops and ambassador training

For LTA rate calculation, the total resource working hours are derived from the addition of employee working hours and agent/contract worker waged hours. We acknowledge a few limitations in terms of the standard methodology for total resource working hours calculation/reporting, however, we are currently in-process to finalise standard calculation/reporting methodology and policy at the Morgan Group level.

Morgan's aspirations and 2030 goals



A work environment where all employees are valued and can do their best work.

- By 2030, we will have a top quartile engagement score.

2022 progress and performance

In 2022, we launched three employee resource groups (ERG) to serve as a visible sign of our commitment to a diverse and inclusive workplace. The three ERGs are:

- Women@Morgan
- Military@Morgan
- PRISM – Pride, Respect, Inclusion and Support at Morgan, supporting our LGBTQ+ community and their allies

We held a number of inclusive events and supported chapters of our ERGs to get together on sites.

We also took steps to address the feedback received from our previous global employee engagement survey, and improved our score to 53% in 2022 (2021: 50%).

What's next

In 2023, we are:

- Supporting our hiring managers through our new licence to recruit programme. This initiative brings inclusiveness and diversity training to hiring managers, supports the implementation of more diverse hiring panels and supports the development of more inclusive language in our job adverts
- Developing a global Respect@Work policy
- Introducing childcare and eldercare concierge services in some of our biggest geographies to support those in our workforce with caring commitments
- Using both positive and negative feedback from our 'Your Voice' survey, to tackle the issues that our people have identified and that they care about the most

Morgan's aspirations and 2030 goals



Our employee demographics will be inclusive and reflective of the communities in which we operate.

- By 2030, 40% of our leadership population will be female.

2022 progress and performance

In 2022, we relaunched our early careers programme, with an increased focus on diversity; 45% of the cohort were female.

Following the launch of Women@Morgan, our employee resource group, we held virtual and in-person events marking important dates such as World Menopause Day and opening direct lines of communication to leadership. A key area of development in supporting our women has been driving acceptance on open communication around gender issues.

Our recent employee engagement survey told us that:

- Women are more engaged than men (57% v 52%) at Morgan
- Work life balance is better for women than men in Morgan (69% v 62%)
- 85% of women feel valued at Morgan, versus 81% for men

What's next

In 2023, we are:

- Focusing on the recruitment of our direct labour force. Our entry-level employees are the future leaders and managers of tomorrow and getting the gender balance right at this level will support greater diversity at the mid and senior levels in the organisation by 2030
- Developing an appealing employer brand, in order to articulate better our culture and in part the positive experiences of women in Morgan. Through this work we will also support the creation of more female-friendly policies
- Utilising more female-specific development programmes, better supporting the diverse development needs of women at all levels

Governance

We view good governance as crucial to business success, and conducting and managing our activities in a responsible manner has always been an important part of our strategy.

We are committed to fulfilling our responsibilities to our stakeholders and seek continuous improvement in the standards of governance that apply across all of our operations.



Morgan's aspirations and 2030 goals

Responsible procurement and supply chain management.

2022 progress and performance

We publish a Supplier Code of Conduct which provides a set of minimum conduct standards that we expect from our suppliers globally. Our Supplier Code focuses on treating people fairly, complying with health and safety rules, protecting the environment, and adhering to important ethics and compliance obligations.

In 2022, we distributed the Supplier Code to ensure awareness of our conduct standards. We collected responses through a self-assessment questionnaire to determine how our top tier suppliers implement ESG-related targets, policies, and practices within their operations.

What's next

We are:

- Continuing to review our population of third parties, with emphasis on entities who may act on our behalf or interact with government officials
- Analysing ESG self-assessment responses to determine the status of our contracting parties' ESG programmes and offer guidance for further development
- Continuing active participation in voluntary industry-wide Product Stewardship Programmes (PSP) in both the US and EU, with internal and external targets for airborne fibre monitoring met in US and internal targets in EU (with data driving targeted improvements)

Policies

We are committed to a sustainable future. To support our goals, we have policies and practices in place to ensure we are meeting our obligations.

🔗 Read more at morganadvancedmaterials.com/ESG Policies

Environment

Our EHS Policy sets out the Group's commitment to protect and enhance the environment, to minimise the environmental impacts of our activities and to maximise the positive effects of our products and services. Our manufacturing processes have environmental impacts arising from the consumption of resources, air emissions, waste generation and water discharge. We seek to minimise these impacts and to go beyond minimum legal requirements, by focusing on continuous improvement and establishing certified environmental management systems at our operating facilities.

The Policy and framework set minimum standards and provide guidance on what is expected of our sites. Environmental performance is managed at the local level, with top-level oversight by the Group. Guided by our Policy, designated EHS personnel are responsible for compliance with local laws and regulations and for facilitating continuous improvement at a site level.

Morgan's aspirations and 2030 goals

Transparency in our reporting.



2022 progress and performance

Our policies and frameworks set minimum standards and provide guidance on what is expected of our sites. For example:

- > Morgan Advanced Materials' EHS Policy sets out the Group's commitment to protect and enhance the environment, to minimise the environmental impacts of our activities and to maximise the positive effects of our products and services
- > Morgan Advanced Materials' Conflict Minerals Policy which sets out the Group's commitment not to support the sourcing of conflict minerals originating from countries which are involved in or contribute to social or environmental abuses.

In 2022, we also piloted 'Life Cycle Assessment' (LCA) across two of our GBUs. We used the LCA results internally to understand our products and their hotspots.

- > We've shared our EcoVadis scorecard with circa 80 companies which demonstrates how we align and support our customers with their ESG aspirations

What's next

- > In 2023, we aim to have Environmental Product Declarations (EPDs) and Product Carbon Footprints available for selected products to support customers with their own reporting obligations
- > As we do this, we will be able to use the data to help inform our environmental decisions, looking to reduce the impact of our products on energy usage, water usage, waste and other environmental factors

Morgan's aspirations and 2030 goals

Ethical conduct.

2022 progress and performance

The Morgan Code is a foundational component of our ethics and compliance programme. The Morgan Code is a set of principles, supported by Group policies, which set out how we must conduct ourselves in support of our people, our communities, our business partners and our shareholders. It applies to all employees and extends, as appropriate, to Morgan's business partners including agents, joint venture partners and other third-party representatives.

In 2022, we held numerous engagements with our people worldwide including Morgan's first Ethics Week to provide training on business ethics topics and consider potential ethical dilemma scenarios. We remained committed to providing required quarterly ethics training for over 3,000 in-scope employees, and enhanced our collection and analysis of ethics and compliance programme data to ensure senior leaders have visibility of how risk controls are working in practice.

What's next

- > Our ongoing focus is to continue employee engagement on ethics and compliance
- > We are focused on ensuring awareness of ethical conduct expectations and increasing effectiveness of controls across our business
- > In addition, we are completing periodic reviews of risks and controls in areas of our operations that may give rise to heightened bribery or antitrust risks

Safety

Our Health and Safety Policy provides all our locations with minimum standards, advice and guidance. Our minimum standard is based on current requirements from the UK and US legislative codes and associated best practice. If a local in-country standard is higher than these, the sites are required to achieve the local standard. There are a number of key sub policies. The compliance audit programme is conducted against the health and safety framework, systems and KPIs, with a focus on high-risk items. All our manufacturing facilities are reviewed on a four-year rolling cycle.

People

Our employee policies are set locally to comply with local law and are within the overall Group framework. Individuals who are aware of, or suspect, issues contravening our Group policies or the Morgan Code, can report these confidentially via a 'Speak Up' hotline.

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.

We promote equal opportunities for all employees and job applicants and do not unlawfully discriminate. We make reasonable adjustments to accommodate any employee who may have a disability within the meaning of all global equality legislation, and where the Company is aware of such disability.

Task Force on Climate-related Financial Disclosures (TCFD)

Our full TCFD statement has been published separately on our website. We have chosen to publish this separately from the Annual Report in order to provide a more detailed analysis, in addition to the mandatory disclosures. We see this document as an important area of governance, and therefore we are publishing in the same way as our policies, the Morgan Code and our other obligations.

➔ morganadvancedmaterials.com/TCFD

We have included a summary of the TCFD Report in this section.

Climate change is a complex challenge to navigate, requiring the development of new methodologies and strategies and new ways of thinking about the risks and opportunities to our business. We have built on our previous statement and improved in the following ways:

1. Our net zero roadmap

Within the disclosure, we have shared our net zero roadmap which outlines our strategy towards carbon neutrality in 2050.

2. Scenario analysis

In 2022, Morgan undertook a physical and a transitional scenario analysis pilot. As a large energy consumer, a potential risk to Morgan is exposure to carbon taxation. In response to the results from the scenario analysis, we have developed a kiln strategy and incorporated this into our net zero roadmap.

3. Further embedding of targets

Greenhouse gas emissions targets are now part of our Long-Term Incentive Plan (LTIP).

Climate change is one of the greatest challenges facing society. We believe it is important to all our stakeholders to report our approach in a transparent and robust way. The Task Force on Climate-related Financial Disclosures has developed a disclosure framework to help companies improve and increase the understanding of their reporting of climate-related financial information. We are pleased to be reporting in line with the recommendations for a second year and building on this disclosure in years to come.

Listing Rule 9.8.6R Compliance Statement

Morgan Advanced Materials is reporting in line with FCA Listing Rule 9.8.6R(8) by including climate-related financial disclosures consistent with the TCFD recommendations in this TCFD Report. We consider our climate-related financial disclosures to be consistent with eight of the recommendations, however we are adopting an explain stance for the following three recommendations:

1. Strategy B – The impact and responses to climate-related risks are disclosed, but many are not yet fully quantified. Further scenario analysis through 2023 on the remaining risks and opportunities will allow for more quantitative analysis in future years.

2. Strategy C – Scenario analysis has not been completed on all listed risks and opportunities. Analysis on remaining risks and opportunities will be completed for future reporting years.

3. Metrics and Targets B – scope 1 & 2 data is disclosed but it was not possible to complete a scope 3 inventory for the reporting year. Results of an initial scope 3 screening exercise based on prior year data are included, and the development of a scope 3 inventory is planned during 2023.

Streamlined Energy and Carbon Report

This report summarises our energy usage, associated emissions, energy efficiency actions and energy performance under the government policy Streamlined Energy & Carbon Reporting (SECR). This is implemented by the Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018. Also, it summarises in the appendix, the methodologies utilised for all calculations related to the elements reported under energy & carbon. Morgan Advanced Materials PLC are a UK incorporated business and is also a main-market listed company. Under SECR legislation we are mandated to include energy consumption, emissions, intensity metrics and all energy efficiency improvements implemented in our most recent financial year, for our UK operations. An operational boundary has been applied for the purposes of the reporting.

Since 2015 we have reduced our scope 1 and 2 GHG emissions by 38%. Absolute emissions are our key metric for monitoring our annual efficiency savings. 92 projects which tackled our energy and water consumption were completed across the Group as we work towards our 2030 ESG goals.

Examples of energy efficiency projects delivered in 2022 include:

- Solar capacity – we have increased our solar capacity at three of our sites: Yixing, China, South Africa and Aurangabad, India. This increased capacity will move these sites closer to becoming entirely energy independent.
- LED Installation – we continue to install LED lights at our facilities. During 2022, and additional nine sites had LED lighting systems installed. This has made our lighting systems at these sites as energy efficient as possible.

- **Equipment Efficiency** – during 2022, we replaced equipment with more efficient models. At our facility in Ranipet, India, fuel oil furnaces were replaced with electric furnaces, eliminating the need for fuel oil heating and moving to a more efficient energy source. At our facilities in Coudersport, USA and St Marys, USA, the ovens have been changed to electric models which are 30% more efficient. Efficient compressed air systems have also been installed at our facility in New Bedford, USA, further reducing our energy consumption.
- **Fuel Efficiency** – through the installation of a heat recovery system at our facility in Suzhou, China, our furnace fuel consumption has reduced by 15%.
- **Equipment Optimisation** – during 2022 we have optimised the furnace loading and firing pattern to avoid suboptimal use.
- We have also replaced existing heat pumps with more energy efficient models. Compressed air systems have been improved with leak detection and upgrades.
- **Energy Monitoring** – improvements in energy monitoring have been made at our facility in Fostoria, USA. This includes the installation of sub-meter and energy monitoring systems that will allow a more accurate view at one of our largest sites.

Our GHG emissions are reported on an operational control basis. Our UK operations comprise five manufacturing sites and two non-manufacturing sites.

	Units	2022	2021	2020
Total scope 1 Energy Consumption¹	MWh	636,583	648,833	592,325
UK operations (total)	MWh	37,988	37,358	36,277
Natural Gas	MWh	37,987	37,355	36,253
LPG	MWh	1	3	24
Global (excluding UK)	MWh	598,595	611,475	556,048
Total scope 1 GHG emissions¹	tCO₂e	117,474	118,747	108,321
UK operations	tCO ₂ e	6,934	6,763	6,670
Global (excluding UK)	tCO ₂ e	110,540	111,984	101,651
Total scope 2 Energy Consumption	MWh	421,490	417,835	387,177
UK operations	MWh	15,205	15,083	15,673
Global (excluding UK)	MWh	406,285	402,752	371,504
Total scope 2 GHG emissions²	tCO₂e	89,115	107,070	160,126
UK operations	tCO ₂ e	-	-	3,657
Global (excluding UK)	tCO ₂ e	89,115	107,070	156,469
GHG intensity³	tCO₂e/MWh	0.195	0.212	0.274
UK operations	tCO ₂ e/MWh	0.130	0.129	0.199
Global (excluding UK)	tCO ₂ e/MWh	0.199	0.216	0.278

1. Excludes transport and process emissions

2. Market-based method

3. GHG intensity figure uses the total Scope 1 and Scope 2 market based GHG emission figures

Methodology

This report (including the Scope 1 and 2 consumption and CO₂e emissions data) have been developed and calculated using the GHG Protocol – A Corporate Accounting and Reporting Standard (World Business Council for Sustainable Development and World Resources Institute, 2004), Greenhouse Gas Protocol – Scope 2 Guidance (World Resources Institute, 2015) Environmental Reporting Guidelines: Including Streamlined Energy and Carbon Reporting Guidance (HM Government, 2019). Global (Excluding UK) Scope 1 and 2 calculations have been developed using IEA 2022 emission factors along with supplier-specific emission factors. Government Emissions Factor Database 2022 version has been used utilising the published kWh gross calorific value (CV) and kgCO₂e emissions factors relevant for reporting period 01/01/2022 – 31/12/2022. All consumption data for Morgan Advanced Materials PLC was complete for the reporting period. Therefore, no estimations were required.

Risk management

We have 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.

Principal and emerging risks are identified both 'top down' by the Board and the Executive Committee and 'bottom up' through the Group's global business units (GBUs). The severity of each risk is quantified by assessing its inherent impact and mitigated probability, to ensure that the residual risk exposure is understood and prioritised for control throughout the Group.

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

During the year, a number of actions were identified to continue to improve internal controls and the management of risk, including:

- increased focus on the Group's 'thinkSAFE' programme, focusing on developing a caring safety culture, together with work to strengthen our safety systems
- continued focus on Trade Compliance with the implementation of 'thinkTRADE'
- continued focus on a robust internal financial control environment
- continued focus on the Group's 'Speak Up' process; including strengthening the visibility of the process

- further emphasis on the ethics agenda, including self-certification of policy compliance and the ethics and compliance training platform providing mandatory global quarterly training
- driving forward the Group's sustainability agenda.

Cyber incident

We informed the market on 10 January 2023 that we had detected unauthorised activity on our network. Immediate steps were taken to contain the incident, launch response plans, engage our specialist support services and embark on restoring systems. A small number of systems have proven irrecoverable. We are accelerating the implementation of a new, cloud-based ERP solution at the affected sites and across the Group as a whole. We are also expediting improvements to the Group's overall IT infrastructure, procedures and framework. The Board continues to monitor the impact of the incident and receives regular updates on the progress against the actions taken to mitigate the risk of further incidents. We continue to run regular training programmes on cyber risk and IT security.

Risk appetite

The Board reviewed its appetite for the Group's principal risks and concluded that its appetite for these risks was unchanged from the previous 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, as these underpin the success of the Company's products and the safety of our people and contractors.

The appetite for risk in the areas of legal and regulatory compliance continues to be extremely low, and the Group expects its businesses to comply with all laws and regulations in the countries in which they operate. The Group also has a low appetite for financial risk. During the year, the Board monitored the Group's current risk exposure relative to the Board's appetite for different risks. There were no risks where the current risk exposure exceeded the Board's risk appetite.

Emerging risks

As part of the ongoing risk management process, the Board and the GBUs identified and assessed emerging risks. None of these emerging risks are currently deemed to be significant and they are therefore not listed amongst the Group's principal risks below. They are identified, assessed and monitored continuously to be able to respond effectively when they crystallise. The key emerging risk areas identified were:

- Regulatory risk: manufacturing regulations – regulatory requirements for certain hazardous materials. Tax regulations – with governments globally aiming to reduce their national debts following the COVID-19 pandemic.
- Social/Societal – potential recruitment challenges to replace an ageing direct workforce in some locations; longer-term changes to end-markets, redirecting effort to new end-markets for example, electric vehicles, domestic heating, decentralised generation of energy.
- Business model: route to market – potential permanent change in traditional selling models requiring an accelerated shift to e-commerce. Change to permanent remote working with our employees, customers and vendors.

These emerging risks are continually monitored so that their potential impact can be understood and mitigated to prevent them from becoming more significant. They are also considered as an integral part of the strategic planning process, and they form part of the focused risk review of each GBU.

The following are the Group's principal risks and uncertainties and they represent the 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 could impact the delivery of strong returns to the Group's shareholders. An indication of the Board's assessment of the trend of each principal risk – whether the potential severity has increased, decreased or is broadly unchanged over the past year – is provided.

Operational risks

	Risk description, assessment and trend from 2021	Mitigation
Technical leadership Severity: Moderate Trend: Unchanged Risk appetite: Higher	<p>The Group's strategic success depends on maintaining and developing its technical leadership in materials science over its competitors.</p> <p>Unforeseen or 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.</p> <p>The advanced technological nature of the Group requires people with highly differentiated skill sets. Any inability to recruit, retain and develop the right people would negatively impact the Group's ability to achieve its strategic goals.</p>	<p>The Group has a dedicated technology team within each GBU which monitors relevant technology and business developments, using technology roadmaps linked to 20 major technology families, to ensure it remains at the leading edge of development. The Group also has four Centres of Excellence. These Centres focus Morgan Advanced Materials' expertise and research resources on further developing core technologies and identifying new opportunities and applications.</p> <p>The GBU leadership teams proactively monitor their technology priorities and R&D investments and have implemented a stage-gate process to manage this effectively. These projects are also regularly reviewed by the CEO and CFO.</p> <p>Where Group products are designed for a specific customer, they are developed in partnership with the customer. The Group seeks to secure intellectual property protection, where appropriate via a Trade Secret Standard, for its existing and emerging portfolio of products and has an in-house counsel dedicated to intellectual property protection, with the support of external advisors.</p> <p>The GBU IP Strategies place emphasis on improving trade secret management activities. Group policy includes a Trade Secret Standard document.</p>
Operational execution/ organisational change Severity: Moderate Trend: Unchanged Risk appetite: Moderate	<p>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 GBU set up and to the Group's structure. Further improvements and changes are planned for future years. Failure to manage these changes adequately could result in interruption to operations or customer service, or a failure to maximise the Group's opportunities.</p>	<p>Changes to operational processes are carefully considered by site and GBU management before implementation. Operational improvements and savings are monitored against budget by the GBUs and the Executive Committee to ensure that changes deliver the savings promised without disruption to business operations. New capital investments are approved at appropriate levels of the Group and delivery of these is overseen by GBU and Group management.</p> <p>Organisational changes are assessed by the Chief Executive Officer, the Executive Committee and in certain cases by the Board before being implemented in line with local employment regulations.</p> <p>A number of global functionalisation initiatives were implemented within the GBUs and IT in 2022 to align and standardise data and processes. The benefits of these projects will strengthen our business in 2023.</p> <p>Change management capabilities throughout the business were developed to address the current global changes and challenges.</p> <p>➔ Further detail on our strategy can be found on pages 16 to 17 and 20 to 23</p>

Risk management continued

Operational risks

	Risk description, assessment and trend from 2021	Mitigation
Portfolio management Severity: Low Trend: Unchanged Risk appetite: Moderate	<p>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 manage the Group's portfolio of businesses proactively and in line with this technology profile could lead to the value of the Group's businesses being eroded over time or to a failure to exploit opportunities to acquire businesses with the capability to add further value to the Group.</p>	<p>The Board performs regular reviews of the Group's portfolio.</p> <p>During 2020, the Group launched a COVID-19-related restructuring and efficiency programme. This accelerated existing plans to simplify the Group's portfolio and align capacity with the anticipated demand across the business. This programme was completed in 2021.</p> <p>During 2022, opportunities to acquire businesses were actively reviewed on a continuing basis.</p>
Macro-economic and political environment Severity: Significant Trend: Adverse	<p>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 resource price shocks.</p>	<p>The Group's broad market and geographic spread helps to mitigate the effects of political and economic changes.</p> <p>Annual Budgets and Strategic Plans, as well as monthly 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 the Board.</p> <p>In 2022, the macro-economic and political environment has declined further, driven by increased energy costs and inflation, deglobalisation and the various global conflicts.</p> <p>Further global issues considered by the Board this year included the continuing impact and uncertainty relating to the trade negotiations between the US and China.</p>
Environment, health and safety (EHS) Severity: High Trend: Unchanged Risk appetite: Very low	<p>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. Given the long history of many of the operations of the Group, there is also a risk that historical operating and environmental standards may not have met today's environmental regulations. In addition, the Group may have obligations relating to prior asset sales or closed facilities.</p>	<p>Managing its operations safely is the Group's number one priority. The Group has a comprehensive EHS programme managed by the Group Environment, Health, Safety and Sustainability Director, with clear EHS standards and a comprehensive programme of audits to assess compliance.</p> <p>The Group Environment, Health, Safety and Sustainability Director, working with the Global EHS Leads, 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.</p> <p>EHS performance is monitored by the Group Executive Committee and the Board. Our LTA rate was 0.28 (2021: 0.22); it has been impacted by a larger number of new employees in the business as we ramped up production volumes. During 2022, our 'thinkSAFE' behavioural programme was fully deployed, with all employees taking part. Safety continues to receive a high level of focus throughout the organisation.</p> <p>As at 31 December 2022, the Group was managing projects to remediate legacy contamination at a number of former operational sites in conjunction with external specialists and relevant authorities.</p> <p>The Group's commitment to protecting and enhancing the environment is set out on pages 32 to 33 and 36 to 37.</p> <p>TCFD disclosures are set out on pages 38 to 39.</p> <p>Details of the Group's provisions and contingent liabilities can be found in note 24 to the consolidated financial statements.</p>

Operational risks

	Risk description, assessment and trend from 2021	Mitigation
Pandemic Severity: High Trend: Adverse	<p>The overall risk severity has been increased based on assessing a potentially higher impact of a future pandemic.</p> <p>Communicable disease impacts ways of working, the supply chain and the ability of employees to travel to work in affected areas.</p> <p>The Company's priority is to take all actions and precautions necessary to ensure the safety and wellbeing of our employees.</p>	<p>In all manufacturing sites, ways of working to respond to the pandemic were successfully adapted and matured further – including social distancing, hygiene measures and additional PPE – to keep our people safe. Flexible working from home was also established, and further strengthened for all roles that could do so.</p> <p>The Group has provided clear and timely communication to reinforce the importance of following safety measures in every part of the organisation.</p>
Climate change Severity: High Trend: Unchanged	<p>Global climate change poses short-term and longer-term challenges for our business. The expected changes are far-reaching and irreversible.</p>	<p>The Group actively mitigates the two transitional risks of carbon pricing and eliminating natural gas.</p> <p>The Group evaluated climate scenario analysis via modelling by an external consultant in 2022.</p> <p>This includes several longer-term risks like heat stress, water scarcity, sea level rise, and supply chain disruption.</p> <p>Additionally, adverse/extreme weather changes are a potential risk which is monitored by the GBUs and the respective sites.</p> <p>Science Based Target initiative (SBTi) targets are under development to align with a well below 2°C scenario climate risk.</p>
Product quality, safety and liability Severity: High Trend: Unchanged Risk appetite: Low	<p>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.</p> <p>Some of our products are used in potentially high-risk applications, for example in the aerospace, automotive, electric vehicle, medical and power industries.</p>	<p>Many of the Group's products are designed to customer specifications. Morgan Advanced Materials' quality management systems and training help ensure that all our products meet or exceed customer requirements and national/international standards.</p> <p>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. Group-wide training on the policy requirements continues.</p> <p>The Group insurance programme includes product liability insurance and is reviewed annually by the Board.</p>
IT, cyber security and data management Severity: Significant Trend: Adverse Risk appetite: Very low	<p>Across the industry the frequency of cyber attacks is growing, influenced by increased connectivity, an accelerated shift to cloud platforms and remote working.</p> <p>The global regulatory compliance landscape, including export regulations, continues to mature and add complexity to how we process, store and share internal and external data on a global level within the Group. Failure adds significant risk to the GBUs and the Company.</p> <p>The effective management of the Group's IT infrastructure is important in enabling our businesses to deliver customer requirements reliably. Key business system failure might impact the ability of the business to deliver on its strategic goals.</p>	<p>Following the cyber incident experienced in January 2023 (referred to above on page 19), the Group's security and monitoring programme has been expedited. We continue to run training programmes on cyber risk and IT security and have strengthened the 'thinkSECURE' internal brand as an awareness programme.</p> <p>We continue to monitor the regulatory and compliance landscape and emerging regulations, such as the US Department of Defense's Cybersecurity Maturity Model Certificate (CMMC), and the EU-GDPR and UK Data Protection Act (DPA) 2018.</p> <p>Data management is seen as an increased risk area. Steps to address this are in place, including a Data Governance Committee and a data classification project which is focused on identifying, monitoring and protecting the use of data across the Group.</p>

Risk management continued

Operational risks

	Risk description, assessment and trend from 2021	Mitigation
Supply chain/ business continuity Severity: High Trend: Favourable Risk appetite: Higher	<p>The Group has potential single-point exposure risks, which include:</p> <ul style="list-style-type: none"> Single-point supplier – a significant interruption of a key internal or external supply could impact business continuity. Single-point site – a key site exposed to a strike, a natural catastrophe or a serious incident, such as fire, could impact business continuity. <p>One Group site, Hayward, is situated in the California earthquake zone (US). Certain of the Group's businesses are important for intercompany supply purposes.</p>	<p>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 many cases could be switched to other sites. The Business Continuity Policy supports minimum standards at the Group's most important sites for intercompany supply.</p> <p>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, and maintenance of product quality and strong customer relationships.</p> <p>The overall risk severity has improved based on a reduced probability resulting from the effects of the ongoing GBU activities.</p> <p>The Group insurance programme includes business interruption cover and specific cover in relation to the impact of an earthquake in California, US; this Group-level insurance is reviewed annually by the Board.</p>
Treasury Severity: Moderate Trend: Unchanged Risk appetite: Low	<p>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. These 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.</p>	<p>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.</p> <p>The refinance of the Group's revolving credit facility (RCF) was completed in November 2022. As at 31 December 2022, £76 million of the Group's £230 million revolving credit facility was drawn down.</p> <p>Further detail on the Company's Treasury Policy is set out in the Group Financial Review, which can be found on page 54.</p>

Financial risks

	Risk description, assessment and trend from 2021	Mitigation
Pension funding Severity: Low Trend: Favourable Risk appetite: Low	<p>The Group sponsors several defined benefit pension arrangements (the Schemes), whose liabilities are subject to fluctuating interest rates, investment values and inflation. This coupled with the increased longevity of members and a tougher regulatory funding regime will result in increased funding burdens on the Group in the future.</p> <p>The deficit in Morgan's global defined benefit pension schemes calculated on the basis required for IAS 19 accounting disclosures decreased from £102.7 million as at 31 December 2021 to £15.6 million as at 31 December 2022.</p> <p>The Group also participates in two multi-employer defined benefit schemes in the US, both of which have significant funding deficits.</p>	<p>Morgan's primary means of mitigating pension 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 external management through the Schemes' trustees, corporate actuaries and professional advisors.</p> <p>In the UK both Schemes are closed to the future accrual of benefits and, in consultation with the Company, the Trustees have adopted a proactive approach to the management of risk. Following the most recent Scheme valuations in March 2022, the Company agreed to make a lump sum contribution of £67 million to the Schemes, equivalent to the total contributions remaining due under the existing Recovery Plans and sufficient to fully fund the Schemes on the basis of the Trustees' prudent 'Long Term Objective'. In addition, the Schemes' interest and inflation rate exposure is now 100% hedged using only moderate levels of leverage. As a result, overall levels of risk in the Schemes have been significantly reduced and the security of member benefits greatly enhanced. No further contributions will be required from the Company at least until the next Scheme Valuations in March 2025.</p> <p>Risk for both of the defined benefit Pension Plans in the US has been reduced. One completed a full legal termination (in June 2016). For the other Scheme, a formal offer of a present-value-equivalent, lump-sum cash payment was made to members. Following a \$36 million additional contribution (in December 2017) and a move to a significantly de-risked investment portfolio, this Scheme is now almost fully funded on an accounting basis.</p> <p>A liability management strategy for both the US multi-employer plans has been agreed and a proposal for withdrawal made to the Trustees of the more severely underfunded arrangement.</p> <p>No significant funding obligations exist in any other individual country although German legacy defined benefit schemes are unfunded, in accordance with local practice. The recent risk review identified no significant liability increases were likely in the foreseeable future.</p>

Risk management continued

Financial risks

	Risk description, assessment and trend from 2021	Mitigation
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 Group's tax function, working in conjunction with external specialists as required, closely monitors fiscal developments and changes such as BEPS 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 to the Audit Committee on key tax issues and initiatives.
Severity: Moderate		
Trend: Unchanged	The OECD's Base Erosion and Profit Shifting (BEPS) framework is generating additional obligations and filing requirements for the Group as countries continue to implement the actions in the framework. These could have an impact on the tax paid by the Group.	
Risk appetite: Low		The Group has published its tax strategy on its website in line with UK corporate governance requirements: morganadvancedmaterials.com/ESGPolicies

Legal and compliance risks

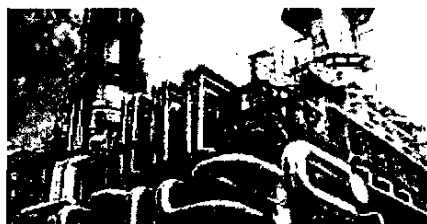
	Risk description, assessment and trend from 2021	Mitigation
Contract management Severity: High Trend: Unchanged Risk appetite: Low	<p>As a global advanced materials business, supplying components into critical applications, the Group may be exposed to liabilities arising from the use of its products. Ineffective contract risk management could result in significant liabilities for the Group and could damage customer relationships.</p>	<p>The Group has an in-house legal function supplemented by specialist external lawyers.</p> <p>The Group's legal policy requires in-house legal review of high-value or high-liability contracts to ensure they contain appropriate protections for the Group. The policy requires Chief Executive Officer approval before a business can enter into a high value contract exceeding £2 million and unlimited liability contracts or contracts where the liability cap exceeds £5 million.</p> <p>The Group has product liability insurance that would respond to product liability claims (up to policy limits) to the extent this is not limited contractually.</p>
Compliance Severity: High Trend: Unchanged Risk appetite: Very low	<p>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.</p> <p>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.</p>	<p>The Group is committed to the highest standards of corporate and individual behaviour. To support this, in 2018 the Group issued the Morgan Code, which has been continuously in force since then. The Code defines the Group's approach to doing business ethically and confirms Morgan's commitments to high standards of ethical behaviour. The Code is supported by a range of documents and mechanisms: global Group policies, standards and guidance; training materials; the provision of an ethics 'Speak Up' hotline for employees; and systems to support effective screening of and due diligence on third parties.</p> <p>Mandatory ethics training for staff covers topics including anti-bribery and anti-corruption, anti-trust, harassment and bullying and trade controls. The Group's 'Speak Up' methods enable staff to report concerns anonymously.</p> <p>The Group has a Global Ethics and Compliance Director organising and leading the Group's activities and programmes.</p> <p>The Group also has a Global Trade Compliance Director whose role is dedicated to ensuring compliance with trade controls. In 2022, the Company introduced the 'thinkTRADE' programme including global training on export control.</p> <p>In addition to Group-level compliance specialists, the businesses have established compliance officers, who are responsible for supporting local training and monitoring. Morgan also employs country-specific trade and export compliance specialists in higher-risk businesses and jurisdictions.</p> <p>Further details on ethics and compliance can be found on page 30 to 31 and 37.</p>

Review of operations

Global business unit performance

The Group's results are reported as five separate global business units, which have been identified as the Group's reportable operating segments, as detailed on page 7. 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.

The strategy for each of our global business units aligns with the execution priorities of the Group. We have put increased emphasis on faster growing markets. Our core markets are critical, providing a strong base with a diversified portfolio. Our four Centres of Excellence drive technological differentiation, support a strong pipeline of innovation and margin expansion. Our sustainable solutions are enabling the energy transition and our Group is resilient, benefitting from diverse end-markets and its global footprint.



Thermal Ceramics

Thermal Ceramics manufactures advanced ceramic materials, products and systems for thermal insulation in high-temperature environments. As at 31 December 2022, it comprised 23 operating sites employing approximately 2,430 people, with manufacturing sites across the world. It also has a network of sales offices allowing immediate access to and facilitating direct working with end-users.

We engineer systems for the safety of people and equipment in demanding applications. Our products help customers, especially those operating energy-intensive processes, to reduce energy consumption, emissions and operating costs. Our 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. Our core strength is our ability to address individual customer problems, using our materials and our applications expertise to design, manufacture and install optimum thermal solutions.

Our product range includes high-temperature insulating fibre products, microporous products, firebricks, monolithic products, heat shields, fired refractory shapes and structural block insulation products. Revenue for Thermal Ceramics for the year was £421.4 million, representing an increase of 15.5% compared with £364.7 million in 2021. This has been driven by recovery in industrial, metals, aerospace and automotive markets, growing petrochemical project revenues and growth in clean energy applications. On an organic constant-currency* basis, year-on-year revenue increased by 11.4%.

Thermal Ceramics operating profit was £44.3 million (2021: £37.8 million), and operating margin was 10.5% (2021: 10.4%), with the slight margin improvements due to increased volumes, with price offsetting inflation. Details of the specific adjusting items of £2.8 million (2021: £2.1 million) are included in note 6. Adjusted operating profit* was £48.7 million (2021: £42.0 million) with adjusted operating profit margin* of 11.6% (2021: 11.5%).



Molten Metal Systems

Molten Metal Systems manufactures an extensive range of high-performance crucibles and foundry consumables for non-ferrous metal melting applications. We provide melting solutions for foundries, die-casters and melting facilities working with zinc, precious metals, aluminium, copper, brass, bronze and other non-ferrous metals. At 31 December 2022, it comprised five operating sites employing approximately 430 people with some sales also being made through a well-established distributor network.

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.

Our product range includes crucibles and foundry products.

Revenue for Molten Metals Systems for the year was £57.8 million, an increase of 21.2% compared with £47.7 million in 2021. Revenue growth is driven by strong end-market demand, share wins in the aluminium market and growth in copper and precious metals. On an organic constant-currency* basis, year-on-year revenue increased by 15.8%.

Molten Metal Systems operating profit was £7.5 million (2021: £6.0 million), and operating profit margin was 13.0% (2021: 12.6%). Margin improvement is from volume leverage and price and efficiency actions more than offsetting inflation. 2022 adjusted operating profit* was £7.8 million (2021: £6.3 million) with adjusted operating profit margin* of 13.5% (2021: 13.2%).



Electrical Carbon

Electrical Carbon develops and manufactures a wide range of products which are used to transfer electrical current between stationary and rotating or linear moving parts in motor, generator, and current-collector applications. The business also makes graphite and felt products used in the high temperature processing of materials and in semiconductor processing. Electrical Carbon's main markets are semiconductors, rail, industrial drives, power generation, iron and steel, mining and wind-power.

As at 31 December 2022, Electrical Carbon comprised 16 operating sites employing approximately 1,390 people, with manufacturing sites across the world. The global spread of its operating sites is supplemented by a comprehensive network of sales offices. The business's core strength is its longstanding materials and applications experience and its ability to engineer appropriate, reliable solutions for individual customer requirements.

Our product range includes electrical carbon brushes and collectors, brush holders, slip rings and linear transfer systems, felt and graphite components.

Revenue for the Electrical Carbon global business unit in 2022 was £188.7 million, representing an increase of 14.4% compared with £164.9 million in 2021, driven by growth in semiconductor and transportation market segments. On an organic constant-currency* basis, year-on-year revenue improved by 9.7%.

Electrical Carbon operating profit was £39.1 million (2021: £25.6 million), and operating profit margin was 20.7% (2021: 15.5%). Margin improvement is driven by operational efficiency savings and the impact of pricing increases which more than offset cost inflation and investment. Adjusted operating profit* was £39.7 million (2021: £32.8 million) with an adjusted operating profit margin* of 21.0% (2021: 19.9%).



Seals and Bearings

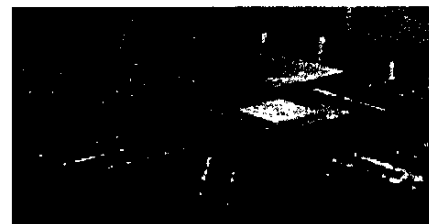
Seals and Bearings makes high-performance self-lubricating bearing and seal components, used predominantly in pumps – industrial and domestic – or other sealing applications. We use advanced carbon/graphite, silicon carbide, alumina and zirconia materials to engineer lightweight, low-friction bearings 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, and are engineered into products which provide customer-specific solutions. As at 31 December 2022, Seals and Bearings comprised 11 operating sites employing approximately 1,370 people, with manufacturing sites across the world.

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.

Our product range includes seals, bearings and general pump components (shafts, vanes, rotors and washers).

Revenue for the Seals and Bearings global business unit in 2022 was £148.5 million, representing an increase of 9.3% compared with £135.9 million in 2021, with the expected reduction in armour sales more than offset by growth in industrial, petrochemical and aerospace markets. On an organic constant-currency* basis, year-on-year revenue increased by 2.8%. Ceramic armour sales in 2022 were £25.5 million (2021: £32.3 million).

Seals and Bearings operating profit was £16.6 million (2021: £22.0 million), with operating profit margin of 11.2% (2021: 16.2%). Details of the specific adjusting items of £1.6 million (2021: £nil) are included in note 6. The margin has declined due to manufacturing inefficiencies in the second half and a quality claim with an armour customer. Adjusted operating profit* was £19.0 million (2021: £22.9 million), with an adjusted operating profit margin* of 12.8% (2021: 16.9%).



Technical Ceramics

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 semiconductor, energy, healthcare, industrial, petrochemicals, security and transport markets, typically in close collaborative customer relationships. As at 31 December 2022, Technical Ceramics comprised 17 operating sites employing approximately 2,560 people, with manufacturing sites across the world.

Our product range includes structural ceramic components, engineered coatings, ceramic-to-metal assemblies including brazed and metallised assemblies, ceramic cores, braze alloys and ceramic tubes and rollers.

Revenue for the Technical Ceramics global business unit in 2022 was £295.7 million, an increase of 24.6% compared with £237.3 million in 2021, driven by growth in semiconductor, healthcare, industrial, defence and aerospace market segments, with a combination of market growth and share wins. On an organic constant-currency* basis, year-on-year revenue increased by 15.8%.

Technical Ceramics operating profit was £39.2 million (2021: £18.9 million), and operating margin was 13.2% (2021: 11.6%). Details of the specific adjusting items of £1.2 million (2021: £6.0 million) are included in note 6. Margin improvement is driven by volume leverage, pricing and efficiency actions and the remaining benefits from our 2020 restructuring programme. Adjusted operating profit* was £41.7 million (2021: £26.4 million), with an adjusted operating profit margin* of 14.1% (2021: 11.1%).

Group financial review

Group performance

Group revenue and operating profit

Group revenue was £1,112.1 million (2021: £950.5 million), an increase of 17.0% on a reported basis compared with 2021.

Group adjusted operating profit* was

£151.0 million (2021: £124.5 million)

Adjusted operating profit margin* was 13.6%, compared with 13.1% for 2021.

Operating profit was £140.8 million (2021: £113.1 million) and profit before tax was £131.6 million (2021: £104.3 million).

Specific adjusting items in 2022 was a net pre-tax charge of £5.5 million (2021: £5.4 million), primarily relating to the impairment of non-financial assets.

Further details are included under Specific adjusting items below.

➔ Read more about our five global business units on [pages 48 to 49](#).

	Revenue		Adjusted operating profit ¹		Margin % ¹	
	2022	2021	2022	2021	2022	2021
	£m	£m	£m	£m	%	%
Continuing operations						
Thermal Ceramics	421.4	364.7	48.7	42.0	11.6%	11.5%
Molten Metal Systems	57.8	47.7	7.8	6.3	13.5%	13.2%
Electrical Carbon	188.7	161.9	39.7	32.8	21.0%	19.9%
Seals and Bearings	148.5	135.9	19.0	22.9	12.8%	16.9%
Technical Ceramics	295.7	237.3	41.7	26.4	14.1%	11.1%
Segment total	1,112.1	950.5	156.9	130.4	14.1%	13.7%
Corporate costs			(5.9)	(5.9)		
Group adjusted operating profit¹			151.0	124.5	13.6%	13.1%
Amortisation of intangible assets			(4.7)	(6.0)		
Operating profit before specific adjusting items			146.3	118.5	13.2%	12.5%
Specific adjusting items included in operating profit ²			(5.5)	(5.4)		
Operating profit			140.8	113.1	12.7%	11.9%
Net financing costs			(9.2)	(9.2)		
Share of profit of associate (net of income tax)			–	0.4		
Profit before taxation			131.6	104.3		

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206, reconciliations of the statutory results to the adjusted measures can be found on pages 57 to 59.

2. The Group reported the results of its five global business units as two divisions until 31 December 2021. From 1 January 2022 onwards, divisional subtotals have been removed from our segmental reporting; we continue to report the five separate global business units.

3. Details of specific adjusting items from continuing operations can be found in note 6 to the consolidated financial statements.

Specific adjusting items from continuing operations

In the consolidated income statement, the Group presents specific adjusting items separately. In the judgement of the Directors, as a result of the nature and value of these items they should be disclosed separately from the results of the Group to allow the reader to obtain an understanding of the financial information and the performance of the Group excluding these items.

Details of specific adjusting items arising during the year and the comparative period are given in note 6 to the consolidated financial statements. Specific adjusting items in relation to discontinued operations are disclosed in note 9 to the consolidated financial statements.

In 2022, specific adjusting items were £5.5 million (2021: £5.4 million) and comprised the following:

	2022	2021
	£m	£m
Specific adjusting items from continuing operations ¹		
Impairment of non-financial assets	(6.5)	(12.4)
Restructuring credit	0.6	0.1
Net profit on disposal of business	0.4	7.1
Business closure and exit costs	–	(0.2)
Total specific adjusting items before income tax	(5.5)	(5.4)
Income tax credit from specific adjusting items	1.1	1.5
Total specific adjusting items after income tax	(4.4)	(3.9)

1. Specific adjusting items relating to discontinued operations are disclosed in note 9 to the consolidated financial statements.

2022

Impairment of non-financial assets

Seals & Bearings, Asia

An impairment charge of £0.6 million has been recognised relating to assets purchased to support a customer contract which did not materialise.

A further impairment charge of £1.0 million has been recognised after reassessing the value in use of property, plant and equipment in a business in Asia which is taking longer than anticipated to generate revenues. This represented a partial impairment of the assets; the carrying value of the assets following this impairment was £5.2 million. The calculation of the value in use was performed as at December 2022. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 12.9% was used to determine the value in use.

Thermal Ceramics, Europe

An impairment charge of £1.2 million has been recognised following a fire in December which destroyed a warehouse and inventory. The assets have subsequently been written off.

An impairment charge of £1.1 million has been recognised after reassessing the value in use of property, plant and equipment in a business in France which is experiencing limited growth and under-utilisation of key assets. This represents a partial impairment of the assets. The carrying value of the assets following the impairment was £0.3 million. The calculation of value in use was performed as at December 2022. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 13.7% was used to determine the value in use.

Thermal Ceramics, South America

An impairment charge of £0.9 million has been recognised in relation to assets associated with a closed manufacturing line.

Technical Ceramics, Asia

An impairment charge of £1.7 million has been recognised after reassessing the value in use of property, plant and equipment in a business in Asia which is taking longer than anticipated to generate revenues. This represents a partial impairment of the assets; the carrying value of the assets following this impairment was £3.2 million. The calculation of the value in use was performed as at December 2022.

A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 12.9% was used to determine the value in use.

Review of non-financial assets impaired in previous years

Impairment charges of £52.6 million for non-financial assets which the business continues to use have been recorded during the current and previous years (Technical Ceramics, Asia £7.7 million, Technical Ceramics, ceramic cores £28.8 million and Thermal Ceramics £15.1 million, and Seals and Bearings, Asia £1.0 million). These impaired amounts could be reversed if the related businesses were to outperform significantly against their budget. A sensitivity analysis was carried out using reasonably possible changes to key assumptions in assessing the value in use of these non-financial assets. This did not result in a material reversal of the impaired amounts.

Restructuring credit

A credit of £0.6 million has been recognised in the current year representing a release of restructuring provisions booked in previous years in relation to the Group's restructuring programme. Whilst this programme was completed in 2021, we retain a restructuring provision of £10.5 million for the Group's obligations at the balance sheet date (2021: £11.8 million). This provision includes remaining lease exit costs and multi-employer pension obligations for two sites which were closed in 2021. The cash outflows relating to the pension obligations may continue for up to 19 years, subject to any settlement being reached in advance of that date. Cash outflows in relation to the lease may continue for the next four years. Refer to note 24 for further information.

Net profit on disposal of business

The Group disposed of its investment in the joint venture Sukhoy Log, based in Russia, during the year. This disposal generated a net profit of £0.4 million. Refer to note 2 for further information.

2021

Impairment of non-financial assets

Technical Ceramics, Asia

An impairment charge of £6.0 million was recognised after reassessing the value in use of property, plant and equipment in a business in Asia which was taking longer than anticipated to generate revenues. This represents a partial impairment of the assets; the carrying value of the assets following this impairment is £5.4 million. The calculation of value in use was performed as at December 2021. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 11.5% was used to determine the value in use.

Electrical Carbon, Europe and North America

Impairment charges of £4.8 million and £1.0 million were recognised after assessing the viability of two development assets in Europe and North America, respectively. The European asset was not deemed viable as we were unable to commission it safely and the American asset was not deemed to be commercially viable.

Thermal Ceramics, North America

An impairment charge of £0.6 million was recognised relating to assets associated with closed manufacturing lines within Thermal Ceramics.

Restructuring credit

A net credit of £0.1 million was recognised in the year ended 31 December 2021 representing £2.1 million of redundancy and closure costs which related to the Group's restructuring programme, offset by a £2.2 million release of restructuring provisions booked during 2020 in relation to this programme.

Net profit on disposal of business

The Group disposed of its 35% shareholding in Jemmttec Limited and the business assets associated with the Latrobe business during the year ended 31 December 2021. These disposals generated a profit of £7.2 million and a loss of £0.1 million, respectively. Refer to note 2 to the consolidated financial statements for further information.

Business closure and exit costs

A £0.2 million charge was recognised relating to the liquidation of businesses in Europe and Asia.

Group financial review continued

Foreign currency impact

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

	2022		2021	
	Closing rate	Average rate	Closing rate	Average rate
GBP to:				
US dollar	1.21	1.24	1.35	1.38
Euro	1.13	1.17	1.19	1.16

The potential impact of changes in foreign exchange rates is given in note 21 to the consolidated financial statements on page 166.

Retranslating the 2022 full-year results at the March 2023 closing exchange rates would lead to revenue of £1,111.9 million and adjusted operating profit* of £149.2 million.

For illustrative purposes, the table below provides details of the impact on 2022 revenue and Group adjusted operating profit* if the actual reported results, calculated using 2022 average exchange rates were restated for GBP weakening by 10 cents against the US dollar in isolation and 10 cents against the Euro in isolation:

	Revenue £m	Adjusted operating profit* £m
Increase in 2022 revenue/adjusted operating profit* if:		
GBP weakens by 10c against the US dollar in isolation	16.9	2.2
GBP weakens by 10c against the Euro in isolation	21.8	3.5

I Definitions of these non-GAAP measures can be found in the glossary of terms on page 206. reconciliations of the statutory results to the adjusted measures can be found on pages 57 to 59

Amortisation of intangible assets

The Group amortisation charge was £4.7 million (2021: £6.0 million).

Finance costs

The net finance charge was £9.2 million (2021: £9.2 million) comprising net bank interest and similar charges of £5.4 million (2021: £5.3 million), net interest on IAS 19 pension obligations of £1.4 million (2021: £1.6 million), and the interest expense on lease liabilities of £2.4 million (2021: £2.3 million) resulting from IFRS 16 Leases.

The impacts of potential changes in interest rates on profit or loss are stated in note 21 to the consolidated financial statements on page 166.

Looking forward to 2023, we anticipate that the net finance charge will be around £13-15 million, comprising: net bank interest and similar charges of £10-12 million; net interest on IAS 19 pension obligations of £0.5 million; and net interest expense on lease liabilities of £2 million.

Taxation

The Group tax charge from continuing operations, excluding specific adjusting items, was £37.1 million (2021: £29.7 million). The effective tax rate, excluding specific adjusting items, was 27.0% (2021: 27.1%). Note 8 to the consolidated financial statements, on page 153, provides additional information on the Group's tax charge.

Looking forward to 2023, we anticipate that the effective tax rate will be around 26%-28%.

On a statutory basis, the Group tax charge was £36.0 million (2021: £28.2 million), higher than the previous year due to the higher taxable profits.

Earnings per share

Basic earnings per share from continuing operations was 30.6 pence (2021: 23.9 pence) and adjusted earnings per share* was 33.8 pence (2021: 27.2 pence). Details of these calculations can be found in note 10 to the consolidated financial statements on page 155.

Final dividend

The Board is recommending a final dividend, subject to shareholder approval, of 6.7 pence per share on the Ordinary share capital of the Group, payable on 3 July 2023 to Ordinary shareholders on the register at the close of business on 9 June 2023. The ex-dividend date is 8 June 2023.

Together with the interim dividend of 5.3 pence per share paid on 18 November 2022, this final dividend, if approved by shareholders, brings the total distribution for the year to 12.0 pence per share (2021: 9.1 pence).

A total dividend of 12.0 pence per share represents a dividend cover of adjusted EPS* of 2.8 times.

The Board has committed to grow the Ordinary dividend as the economic environment and the Group's earnings improve, targeting a dividend cover of around 2.5 times over the medium term. This level of cover ensures sufficient resources are available to continue to invest to support the Group's long-term prospects, as well as to meet the needs of other stakeholders of the Group, including by making deficit contributions to the Group's defined benefit pension schemes.

Note 41 to the Company financial statements, on page 199, provides additional information on the Company's distributable reserves.

Cash flow

Cash generated from continuing operations was £59.1 million (2021: £135.9 million).

Free cash flow before acquisitions, disposals and dividends* was £(46.9) million (2021: £66.2 million).

Net debt* at the year end was £200.4 million (2021: £96.5 million), representing a net debt* to EBITDA* ratio of 1.1 times (2021: 0.6 times).

The Group has cash and cash equivalents* of £117.7 million and undrawn headroom on its revolving credit facility of £154.0 million.

Net debt excluding lease liabilities* was £148.5 million (2021: £46.7 million), representing a net debt* to EBITDA* ratio excluding lease liabilities of 0.8 times (2021: 0.3 times).

Commitments for property, plant and equipment and computer software for which no provision has been made are set out in note 25 to the consolidated financial statements on page 184.

	2022 £m	2021 £m
Cash generated from continuing operations	59.1	135.9
Net capital expenditure	(57.4)	(28.1)
Net interest on cash and borrowings	(5.4)	(5.3)
Tax paid	(31.8)	(25.4)
Lease payments and interests	(11.4)	(10.9)
Free cash flow before acquisitions, disposals and dividends	(46.9)	66.2
Dividends paid to external plc shareholders	(31.6)	(19.1)
Net cash flows from other investing and financing activities	(10.3)	(15.0)
Cash flows from sale of subsidiaries and associates	0.4	15.0
Net cash flows from discontinued operations	1.1	5.3
Exchange movement and other non-cash movements	(14.5)	1.9
Opening net debt ¹ excluding lease liabilities	(46.7)	(101.0)
Closing net debt ¹ excluding lease liabilities	(148.5)	(46.7)
Closing lease liabilities	(51.9)	(49.8)
Closing net debt¹	(200.4)	(96.5)

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206, reconciliations of the statutory results to the adjusted measures can be found on pages 57 to 59.

Capital structure

At the year end total equity was £429.6 million (2021: £349.6 million) with closing net debt¹ of £200.4 million (2021: £96.5 million).

Non-current assets were £524.3 million (2021: £481.9 million) and total assets were £1,020.3 million (2021: £912.5 million).

Details of undiscounted contracted maturities of financial liabilities and capital management are set out in note 21 to the consolidated financial statements on page 166.

Capital structure is further discussed in note 21 to the consolidated financial statements on page 166 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, and the majority of the others in continental Europe.

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

	2022 £m	2021 £m
Operating costs:		
Current and past service cost	(2.7)	(3.2)
Administration expenses recognised outside the pension liabilities	(1.5)	(1.3)
Curtailements and settlements	0.2	0.1
Total operating costs	(4.0)	(4.4)
Net interest on net defined benefit liability	(1.4)	(1.6)
Total	(5.4)	(6.0)

Defined benefit pension plans

The Group pension deficit has decreased by £87.1 million since last year end to £15.6 million on an IAS 19 (revised) basis, largely driven by higher corporate bond yields in the UK leading to a higher discount rate and employer contributions.

- > The UK Schemes' deficit decreased by £76.9 million to a surplus of £25.2 million (2021 deficit: £51.7 million), (discount rate 2022: 4.81%; discount rate 2021: 1.92%).
- > The US Schemes' deficit increased by £1.5 million to £9.2 million (2021: £7.7 million), (discount rate 2022: 4.99%; discount rate 2021: 2.71%).
- > The European Schemes' deficit decreased by £11.1 million to £27.9 million (2021: £39.0 million), (discount rate 2022: 3.70%; discount rate 2021: 0.90%).
- > The Rest of World Schemes' deficit decreased by £0.6 million to £3.7 million (2021: £4.3 million), (discount rate 2022: 5.30%; discount rate 2021: 2.90%).

The most recent full actuarial valuations of the UK Schemes were undertaken as at 31 March 2022 and resulted in combined assessed deficits of £49.7 million on the 'Technical Provisions' basis. The Company subsequently agreed with the Trustees to make a lump sum contribution to the Schemes of £67.0 million on 29 December 2022 in lieu of the remaining contributions that would otherwise have been due under the existing recovery plans from the 31 March 2019 valuations. The sum paid also represented the value of the deficit on the more prudent 'Long Term Objective' basis on the date of that agreement, 25 October 2022. As a result, no further contributions to the Schemes are expected to be required pending the results of the next full valuations as at 31 March 2025.

Post balance sheet event

In January 2023 we detected unauthorised activity on our network. Immediate steps were taken to contain the incident, launch response plans, engage our specialist support services and embark on restoring systems. All manufacturing sites are operational, although some continue to use manual processes as work continues to restore their systems. This has been treated as a non-adjusting post balance sheet event and there has been no impact on the

Group financial review continued

financial results reported for the year ended 31 December 2022. A small number of systems have proven irrecoverable; we are accelerating the implementation of a new, cloud-based solution at the affected sites.

We expect to incur around £15 million of systems recovery and specialist support costs including IT asset impairment charges of £0.7 million. These costs will be presented separately as specific adjusting items in the consolidated income statement for the year ending 31 December 2023. At the date of signing, and following consultation with our advisors, we also have a non-adjusting post balance sheet contingent liability relating to potential enforcement action or civil claims pending the completion of our investigation into what data was accessed and regulatory engagement.

Treasury policies

The following policies were 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

Currency transaction exposures exist as a result of the global nature of the Group. 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 on 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. 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 65% of the Group's revenue are managed centrally through a number of pooling arrangements. Credit risk is managed by investing in liquid assets and acquiring derivatives in a diversified way from high-credit-quality financial

institutions. Counterparties are assessed through the use of rating agencies, systemic risk considerations, and regular review of the financial press. Credit risk is further discussed in note 21 to the consolidated financial statements on page 166.

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 its maturity profile are detailed in notes 20 and 21 to the consolidated financial statements on pages 165 and 166.

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, for example those arising from the implementation of the OECD 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 40.

Directors' statements

Going concern statement

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 2 to 59. The financial position of the Group, its cash flows, liquidity position and borrowing facilities, are described earlier in the Financial Review on pages 50 to 54. In addition, note 21 to the consolidated 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 £230.0 million unsecured multi-currency revolving credit facility, which matures in November 2027. As at 31 December 2022, the Group had both significant available liquidity and headroom on its covenants. Total committed borrowing facilities were £418.3 million. The amount drawn under these facilities was £264.3 million, which together with net cash and cash equivalents of £116.2 million, gave a total headroom of £270.3 million. The multi-currency revolving credit facility was £76.0 million drawn. £34.5 million of senior notes are due to mature in October 2023.

The principal borrowing facilities are subject to covenants that are measured semi-annually in June and December, being net debt to EBITDA of a maximum of 3 times and interest cover of a minimum of 4 times, based on measures defined in the facilities agreements which are adjusted from the equivalent IFRS amounts.

The Group has carefully modelled its cash flow outlook, taking account of reasonably possible changes in trading performance, exchange rates and plausible downside scenarios, including the impact of the cyber security incident on 2023 cashflows. This review indicated that there was sufficient headroom and liquidity for the business to continue for the 18-month period based on the facilities available as discussed in note 21 to the financial statements. The Group was also expected to be in compliance with the required covenants discussed above.

The Board has also reviewed the Group's reverse stress testing performed to demonstrate how much headroom is available on covenant levels in respect of changes in net debt, EBITDA, and underlying revenue. Based on this assessment, a combined reduction in EBITDA of 40% and an increase in net debt of 45% would still allow the Group to operate within its financial covenants. The Directors do not consider either of these scenarios to be plausible given the diversity of the Group's end-markets and its broad manufacturing base.

The Board and Executive Committee have regular reporting and review processes in place in order to closely monitor the ongoing operational and financial performance of the Group. As part of the ongoing risk management process, principal and emerging risks are identified and reviewed on a regular basis. In addition, the Directors have assessed the risk of climate change and do not consider that it will impact the Group's ability to operate as a going concern for the period under consideration.

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 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 31 of the UK Corporate Governance Code, the Directors have assessed the prospects of the Company over a period significantly longer than 12 months. The viability assessment period remained at five years to 31 December 2027 in line with impairment review testing and the strategic planning process. The Directors consider this an appropriate period over which to provide the viability statement based on management's reasonable expectations of the position and performance of the Company and the dynamics in the markets in which it operates. Taking into account the Group's current position and the potential impact of the principal risks documented on pages 40 to 47 of the Annual Report, the Directors 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 2027.

To allow the Directors to 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, refinancing of borrowing facilities 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 EBITDA, net debt, and finance charge headroom relative to current bank covenants.

The Directors' assessment also included a review of the financial impact on revenue, EBITDA, net debt, and the adequacy of the financial headroom, relative to a severe but plausible combination of principal risks crystallising that could threaten the viability of the Company. The Directors also considered the likely effectiveness of the potential mitigations that management reasonably believes would be available to the Company over this period.

Directors' statements continued

While the review has considered all the principal risks identified by the Group, the following were focused on for enhanced stress testing:

Scenarios modelled	Impacts modelled	Link to principal risks and uncertainties
IT and cyber security We considered the combination of a failure of a key business system following the cyber security attack and ineffective implementation of core systems impacting the Group's ability to deliver its strategic goals. The sensitivity analysis performed considered the impact of a loss of access to the Group's main ERP system as well as additional accelerated investment in systems following the cyber incident which occurred in January 2023.	Reduction in revenue reflecting 2 weeks' loss of a main ERP system along with one-off exceptional costs required to reinstate the system to the latest cyber security standards. Additional accelerated costs of rolling out new system in each year of the assessment.	IT, cyber security and data management risks
Compliance breach We considered the impact of the breach of national and international laws and regulations including those related to bribery and corruption, human rights, trade/export compliance and competition/anti-trust activities. The impact of a regulatory fine or a penalty has been considered.	Combined 8% reduction in revenue due to reputational impacts. Increase in costs and net debt from regulatory fines and legal fees.	Compliance risk

As part of the ongoing risk management process, principal and emerging risks are identified and reviewed on a regular basis. There are a number of mitigating actions the Group takes to manage and reduce risk, further details of which can be found in the Risk Management section on pages 40 to 47.

The Group has significant financial resources including committed and uncommitted banking and debt facilities, as outlined in the going concern statement. In assessing the Group's viability, the Directors have assumed availability of debt capital markets and that the existing banking and debt facilities will remain in place or mature as intended.

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 it has 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 2027.

Definitions and reconciliations of non-GAAP measures to GAAP measures

Reference is made to the following non-GAAP measures throughout this document. 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. As defined in the basis of preparation section on page 144, these measures are calculated on a continuing basis.

Adjusted operating profit

Adjusted 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, consistent with previous years.

	Thermal Ceramics £m	Molten Metal Systems £m	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	Segment total £m	Corporate costs ¹ £m	Group £m
2022								
Operating profit	44.3	7.5	39.1	16.6	39.2	146.7	(5.9)	140.8
Add back specific adjusting items included in operating profit	2.8	—	(0.1)	1.6	1.2	5.5	—	5.5
Add back amortisation of intangible assets	1.6	0.3	0.7	0.8	1.3	4.7	—	4.7
Adjusted operating profit	48.7	7.8	39.7	19.0	41.7	156.9	(5.9)	151.0
Adjusted operating profit margin	11.6%	13.5%	21.0%	12.8%	14.1%			13.6%

1. Corporate costs consist of central head office costs.

	Thermal Ceramics £m	Molten Metal Systems £m	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	Segment total £m	Corporate costs ¹ £m	Group £m
2021								
Operating profit	37.8	6.0	25.6	22.0	18.9	110.3	2.8	113.1
Add back specific adjusting items included in operating profit	2.1	(0.3)	6.3	—	6.0	14.1	(8.7)	5.4
Add back amortisation of intangible assets	2.1	0.6	0.9	0.9	1.5	6.0	—	6.0
Adjusted operating profit	42.0	6.3	32.8	22.9	26.4	130.4	(5.9)	124.5
Adjusted operating profit margin	11.5%	13.2%	19.9%	16.9%	11.1%			13.1%

1. Corporate costs consist of central head office costs.

Organic growth

Organic growth is the growth of the business excluding the impacts of acquisitions and divestments, and foreign currency impacts. This measure is used as it allows revenue and adjusted operating profit to be compared on a like-for-like basis.

Commentary on the underlying business performance is included as part of the Review of operations on pages 48 to 49.

Year-on-year movements in segment revenue

	Thermal Ceramics £m	Molten Metal Systems £m	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	Segment total £m
2021 revenue	364.7	47.7	164.9	135.9	237.3	950.5
Impact of foreign currency movements	13.7	2.2	7.1	8.4	18.2	49.6
Impact of acquisitions, disposals and business exits	—	—	—	0.2	(0.1)	0.1
Organic constant-currency change	43.0	7.9	16.7	4.0	40.3	111.9
Organic constant-currency change %	11.4%	15.8%	9.7%	2.8%	15.8%	11.2%
2022 revenue	421.4	57.8	188.7	148.5	295.7	1,112.1

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

Year-on-year movements in segment and Group adjusted operating profit

	Thermal Ceramics £m	Molten Metal Systems £m	Electrical Carbon £m	Seals and Bearings £m	Technical Ceramics £m	Segment total £m	Corporate costs ¹ £m	Group £m
2021 adjusted operating profit	42.0	6.3	32.8	22.9	26.4	130.4	(5.9)	124.5
Impact of foreign currency movements	(1.1)	0.1	–	1.2	1.0	1.2	5.7	6.9
Impact of acquisitions, disposals and business exits	–	–	–	0.1	0.2	0.3	–	0.3
Organic constant-currency change	7.8	1.4	6.9	(5.2)	14.1	25.0	(5.7)	19.3
Organic constant-currency change %	19.3%	21.9%	21.0%	(21.5%)	51.1%	14.7%		
2022 adjusted operating profit	48.7	7.8	39.7	19.0	41.7	156.9	(5.9)	151.0

Group EBITDA¹

Group EBITDA¹ is defined as operating profit before specific adjusting items, depreciation and amortisation of intangible assets. The Group uses this measure as it is a key metric in covenants over debt facilities, these covenants use EBITDA¹ on a pre-IFRS 16 basis.

A reconciliation of operating profit to Group EBITDA¹ is as follows:

	2022 £m	2021 £m
Operating profit/(loss)	140.8	113.1
Add back: specific adjusting items included in operating profit	5.5	5.4
Add back: depreciation – property, plant and equipment	30.3	30.1
Add back: depreciation – right-of-use assets	7.8	7.9
Add back: amortisation of intangible assets	4.7	6.0
Group EBITDA¹	189.1	162.5
Group EBITDA¹ excluding IFRS 16 Leases impact	177.7	151.6

Free cash flow before acquisitions, disposals and dividends

Free cash flow before acquisitions, disposals and dividends is defined as cash generated from continuing operations less net capital expenditure, net interest (interest paid on borrowings, overdrafts and lease liabilities, net of interest received), tax paid and lease payments.

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

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

	2022 £m	2021 £m
Cash generated from continuing operations	59.1	135.9
Net capital expenditure	(57.4)	(28.1)
Net interest on cash and borrowings	(5.4)	(5.3)
Tax paid	(31.8)	(25.4)
Lease payments and interests	(11.4)	(10.9)
Free cash flow before acquisitions, disposals and dividends	(46.9)	66.2

Net cash and cash equivalents

Net cash and cash equivalents is defined as cash and cash equivalents less bank overdrafts. The Group discloses this measure as it provides an indication of the net short-term liquidity available to the Group.

	2022 £m	2021 £m
Cash and cash equivalents	117.7	127.3
Bank overdrafts	(1.5)	(0.5)
Net cash and cash equivalents	116.2	126.8

Net debt

Net debt is defined as borrowings, bank overdrafts and lease liabilities, less cash and cash equivalents. The Group also discloses this metric excluding lease liabilities as this is the measure used in the covenants over the Group's debt facilities.

	2022 £m	2021 £m
Cash and cash equivalents	117.7	127.3
Non-current borrowings	(230.1)	(174.0)
Non-current lease liabilities	(41.4)	(40.0)
Current borrowings and bank overdrafts	(36.1)	-
Current lease liabilities	(10.5)	(9.8)
Closing net debt	(200.4)	(96.5)
Closing net debt excluding lease liabilities	(148.5)	(46.7)

Return on invested capital

Return on invested capital (ROIC) is defined as the 12-month Group adjusted 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, plant and equipment, land and buildings, right-of-use assets, intangible assets and other balance sheet items). This measure excludes long-term employee benefits, deferred tax assets and liabilities, current tax payable, provisions, cash and cash equivalents, borrowings, overdrafts and lease liabilities.

	2022 £m	2021 £m
Operating profit	140.8	113.1
Add back: specific adjusting items	5.5	5.4
Add back: amortisation of intangible assets	4.7	6.0
Group adjusted operating profit	151.0	124.5
12-month average adjusted net assets:		
Third-party working capital	183.8	135.0
Plant and equipment	166.5	152.2
Land and buildings	101.0	98.9
Right-of-use assets	33.1	33.0
Intangible assets	188.7	183.8
Other assets (net)	1.5	3.3
12-month average adjusted net assets	674.6	606.2
ROIC	22.4%	20.5%

Adjusted earnings per share

Adjusted 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 an indication of adjusted performance, which is less impacted by adjusting items and therefore reflects the underlying performance trends in the business.

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.

A reconciliation from IFRS profit to the profit used to calculate adjusted earnings per share* is included in note 10 to the consolidated financial statements on page 155.

Constant-currency revenue and adjusted operating profit

Constant-currency revenue and adjusted 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. Pages 171 to 173 provides further information on the principal foreign currency exchange rates used in the translation of the Group's results to constant-currency at average exchange rates.

This Strategic Report, as set out on pages 2 to 59, has been approved by the Board.

On behalf of the Board

Winifred Chime
Company Secretary

27 April 2023

Governance

The guiding principle of the board is to do the right thing with respect to all our stakeholders and the environment.

Douglas Caster CBE FIET
Non-executive Chair

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Chair's letter to shareholders



Dear shareholder

On behalf of the Board, I am pleased to introduce our Governance Report for the year ended 31 December 2022.

This report sets out our approach to effective corporate governance and outlines key areas of focus of the Board and the activities undertaken during the year as we continue to drive long-term value creation for all our stakeholders.

Board's focus during the year

Our strong trading performance this year has been underpinned by good governance practice, which has given the business the resilience to prosper even in challenging times. It would be easy to assume that this resilience was just inherent within the business, but that is not the case. It comes from good governance, clear accountabilities and reporting lines, careful planning and relentless execution.

The resilience of our business was tested in January 2023 after we were called on to manage the consequences of a cyber security incident, having detected unauthorised activity on our network. Immediate steps were taken to contain the incident, launch incident response plans, engage specialist support services and embark on restoring systems. The Board oversaw the work to contain the incident and recover the systems, with meetings regularly held throughout this period.

I would like to thank the team on behalf of the Board for their resilience and the considerable efforts and dedication they demonstrated throughout this period.

Chair succession

After serving on the Board for nine years and as Chair since January 2019, Morgan announced in January 2023 that I would retire from the Board at the conclusion of the Annual General Meeting on 29 June 2023. Our Nomination Committee, led by our Senior Independent Director, Laurence Mulliez, oversaw the succession and appointment process which led to the appointment of Ian Marchant as non-executive Director and Chair designate on 1 February 2023. Ian's strong track record of value creation and listed board experience at major businesses across various sectors over the last 35 years stand him in an excellent position to succeed me and to lead the Morgan Board. A comprehensive induction programme was provided to Ian which gave him an opportunity to meet members of the Executive Committee, senior management and a number of other Morgan colleagues and to gain rapid insight and understanding of Morgan, its business and culture. Further information on the Chair selection process and induction can be found on page 89.

It has been a privilege to work with so many talented colleagues at Morgan as we repositioned the Group into the leading global manufacturer of advanced carbon and ceramic materials. I have every confidence that the Group has the capabilities to continue to lead and grow in its markets in the years ahead. I wish Ian and the Morgan Board every success.

Board evaluation

We carried out an internal review of our performance this year, following the externally facilitated review in 2021. Both reviews were facilitated by Clare Chalmers Limited. I'm pleased to confirm that the Board concluded that it, its Committees and the individual Directors had continued to operate effectively and fully discharged their responsibilities during 2022. The results of this review are set out on page 74.

Stakeholder engagement

Our stakeholder relationships are also vital in building resilience and safeguarding value, and the Board will continue to focus on these relationships. Our strong relationships with our colleagues and our customers helped to contain the impact of the cyber incident and the move towards recovery. But in addition to fostering good stakeholder relationships, resilience also comes from good business as usual governance safeguards. During the year, the Board continued to prioritise health and safety, risk and ethics.

The non-executive Directors participated directly in employee listening sessions and carried out a full programme of activities during the year. The insights from these sessions add an important perspective to Board discussions and decisions. This ensures employee voices are heard and considered as the Board makes decisions that influence the future of Morgan. Further detail on the listening sessions are included on pages 72 to 73.

UK Corporate Governance Code and statement of compliance

Morgan applied all the principles and complied with all the relevant provisions of the 2018 UK Corporate Governance Code (the Code) during FY22, with the exception of provision 38 (alignment of executive Director pension contribution rates with those available to the workforce). Richard Armitage was appointed in May 2022 with a pension benefit which was aligned to the workforce. Pete Raby's pension benefit was fully aligned with the wider workforce from 1 January 2023. Details on how we have applied the principles set out in the Code and how governance operates at Morgan have been summarised on pages 75 to 78.

Douglas Caster CBE FIET
Non-executive Chair

Board of Directors



Douglas Caster CBE FIET
Non-executive Chair

Appointed: Non-executive Director in February 2014. Non-executive Chair and Nomination Committee Chair in January 2019.

Skills and contribution: Douglas is an experienced chair with leadership and governance experience and a strong track record of managing and driving growth within electronics businesses.

Career and experience: Douglas began his career as an electronics design engineer 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 buyout 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 Chair in April 2010 and was Chair of Ultra from April 2011 until 28 January 2019. Douglas was non-executive Chair of Metalys Limited from January 2015 until June 2019.

Douglas was Morgan Advanced Materials plc's Senior Independent Director from January 2015 until December 2017. He was appointed Chair in January 2019, and will retire from that role, and step down from the Board after the Company's AGM on 29 June 2023.

Additional appointments: None

Committees

N · R



Ian Marchant
Chair Designate & Independent Non-executive Director

Appointed: February 2023. Ian will succeed Douglas Caster as the Company's Chair after the Company's 2023 AGM.

Skills and contribution: Ian is a highly strategic and successful leader with more than 35 years of wide-ranging experience at major businesses, bringing a strong track record of value creation and listed board experience. He brings significant expertise in governance, finance, regulation, renewable energy and climate change mitigation to Morgan's Board.

Career and experience: Ian served as Chief Executive of SSE plc from October 2002 to June 2013; prior to this he was the Finance Director of SSE and Southern Electric plc. He is a seasoned non-executive director and chair, having served as Chair of John Wood Group plc and on the Board of Aggreko plc.

Additional appointments: Chair of Thames Water Utilities Ltd (He will step down as Chair and Director in July 2023) and Logan Energy Ltd.

Committees

N · R



Pete Raby
Chief Executive Officer

Appointed: August 2015.

Skills and contribution: Pete has a strong technical background and extensive experience in planning and executing business strategy across global technology and manufacturing operations. As CEO, he leads the Executive Committee and is responsible for Morgan's overall ESG performance, central to our strategic objectives and business model. The Group's Environment, Health, Safety and Sustainability (EHSS) team reports directly to Pete, enabling him to keep the Board apprised on the establishment of goals, management of risks and opportunities, reporting and related governance procedures in that area.

Career and experience: Pete joined Morgan Advanced Materials in August 2015 as Chief Executive Officer. Before joining Morgan, 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 MEng from the Department of Electronic and Electrical Engineering at the University of Leeds.

Additional appointments: Non-executive Director, Hill & Smith plc.



Richard Armitage
Chief Financial Officer

Appointed: May 2022.

Skills and contribution: Richard has broad experience including financial management, investor relations, capital markets, M&A, and commercial management, gained through roles in a number of listed and privately owned chemicals and consumer goods companies.

Career and experience: Richard joined Morgan Advanced Materials in May 2022 as Chief Financial Officer. Before this, Richard was Chief Financial Officer at Victrex Group plc between 2018 and 2022. During this time, he was responsible for Finance, I.T., Legal and Corporate Development, as well as the development of the Group's Chinese businesses. Prior to Victrex, Richard was CFO at Samworth Brothers from 2014 to 2018, CFO of McBride plc from 2009 to 2014, and before that held senior finance positions at Courtaulds plc, ICI plc, and Premier Foods plc.

Additional appointments: Senior Independent Director and Chair of the Audit Committee at NWF Group plc.

Committees

● Committee Chair

Ⓐ Audit

Ⓐ Nomination

Ⓐ Remuneration



Jane Aikman
Independent
Non-executive Director

Appointed: Non-executive Director and Audit Committee Chair in July 2017.

Skills and contribution:

Jane brings to the Board significant financial experience and knowledge of growing manufacturing, technology and marketing businesses gained in a variety of senior executive positions. Jane brings a valuable perspective from her current executive role in the marketing sector.

Career and experience:

Jane has been Chief Financial Officer of Inside Ideas Group Limited since July 2020. Up until May 2019, Jane was Chief Financial Officer of Arqiva Group Limited, a communications infrastructure company. Prior to this, she was the Chief Financial Officer of KCOM Group plc, a listed communications services and IT solutions provider. She was 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 Southeast 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:

Group Director and Group Chief Financial Officer of Inside Ideas Group Limited.

Committees

Ⓐ N R



Helen Bunch
Independent
Non-executive Director

Appointed: Non-executive Director in February 2016. Remuneration Committee Chair on January 2019.

Skills and contribution:

Helen has significant experience of driving business performance, forging long-term relationships and building businesses in new markets, with a background encompassing corporate governance and customer relations. Helen is a member of the Executive Committee at Wates Group, a construction sector pioneer in creating social value, with strong ESG credentials.

Career and experience:

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, including 11 years with ICI and the remainder with a successor company, Lucite International Ltd. In 2006, Helen joined Wates Group as Group Strategy Director, and became Managing Director of Wates Retail Limited in January 2011. From 2015 to July 2020 Helen was Managing Director of Wates Smartspace Limited, the enlarged property services business, following a merger with another Wates company and the acquisition of a facilities management business. In July 2020, Helen became Executive Managing Director of Wates Residential.

Additional appointments:

Executive Managing Director of Wates Residential.

Committees

A N Ⓐ



Laurence Mulliez
Senior Independent Director

Appointed: Non-executive Director in May 2016. Senior Independent Director in December 2017.

Skills and contribution:

Laurence has significant experience in growing, simplifying and unifying complex international and industrial manufacturing businesses and brings valuable knowledge of the energy (including renewables), steel and infrastructure industries, and insight into some of Morgan's key markets.

Career and experience:

Laurence joined Banque Nationale de Paris in 1988, followed by 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. Laurence was Chief Executive of independent power producer Eoxis UK Limited from 2010 to 2013.

Additional appointments:

Chair of Voltalia S.A. and Globelec Ltd. Member of the supervisory board and Chair of the Audit Committee of Siemens Energy AG.

Committees

A N R



Clement Woon
Independent
Non-executive Director

Appointed: May 2019.

Skills and contribution:

Clement has broad managerial experience in globally operating technology and consumer-related industries. He has a strong track record of renewing traditional industries and revitalising growth through strategic interventions, and in-depth experience and knowledge of markets within the Asia Pacific region.

Career and experience:

From August 2016 to March 2020, Clement was Group CEO of Saurer Intelligent Technology Co. Ltd, a €1 billion textile machinery and components business listed on the Shanghai Stock Exchange. Clement continued to serve on the board of Saurer as non-executive director until August 2021. Prior to this, from April 2014 to July 2016, Clement was Advisor and Co-CEO of Jinsheng Industry Co Ltd, an industrial company in China with diverse interests including biotech, automotive and textiles. Previously Clement held various senior positions at companies based in Switzerland and Singapore including Division CEO of Leica Geosystems AG, President and CEO of SATS Ltd, and CEO Textile Division of OC Oerlikon AG. Clement has an MBA in Technology Management from Nanyang Technological University, Singapore, an MSc in Industrial Engineering and a BEng in Electrical Engineering from the National University of Singapore.

Additional appointments:

Non-executive Director of Elementis plc.

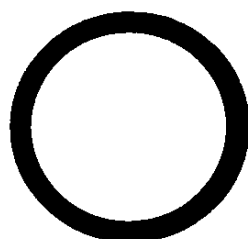
Committees

A N R

Governance at a glance

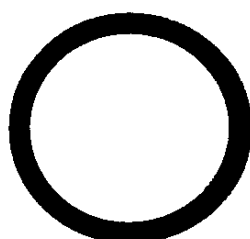
Board composition

Board balance of roles



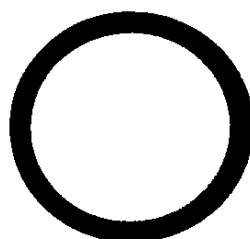
- Chair (independent on appointment) 1
- Executive Directors 2
- Senior Independent Director 1
- Independent non-executive Directors 4

Gender



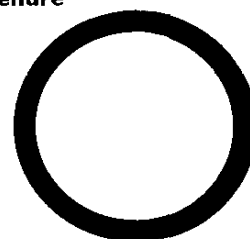
- Female 3
- Male 5

Ethnic origin



- White British 6
- White European 1
- Southeast Asian 1

Non-executive Director tenure



- 0-3 years 1
- 4-6 years 2
- 7-9 years 3

Desired/required skills, experience, attributes

	Douglas	Ian	Laurence	Helen	Jane	Clement	Pete	Richard
Leadership and business operations	●	●	●	●	●	●	●	●
Strategy development	●	●	●	●	●	●	●	●
Commercial	●	●	●	●	●	●	●	●
Accounting and finance		●	●		●			●
Audit, risk management and assurance	●	●	●	●	●	●	●	●
Remuneration/People	●	●	●	●	●	●	●	
Corporate governance	●	●	●	●	●	●	●	●
Engineering and industrial sector	●	●	●		●	●	●	●
Technology/Innovation/R&D	●	●	●			●	●	
International business	●		●	●	●	●	●	●
M&A/Portfolio management	●	●	●	●	●	●	●	●
Safety/Environmental/Sustainability	●	●	●	●		●	●	
Significant change/Large transformation	●	●	●	●		●	●	

Director attendance at meetings of the Board and its Committees

Director	Board	Audit Committee	Nomination Committee	Remuneration Committee
Douglas Caster	8/8	4/4 ¹	3/3	4/4
Ian Marchant ²	0/0	0/0	0/0	0/0
Pete Raby	8/8	4/4 ¹	3/3 ¹	4/4 ¹
Richard Armitage ³	5/5	3/3 ¹	–	–
Peter Turner ³	3/3	1/1 ¹	–	–
Jane Aikman	8/8	4/4	3/3	4/4
Helen Bunch	8/8	4/4	3/3	4/4
Laurence Mulliez	8/8	4/4	3/3	4/4
Clement Woon	8/8	4/4	3/3	4/4

1. Attended by invitation.

2. Ian Marchant joined the Board on 1 February 2023.

3. Richard Armitage joined the Board on 30 May 2022. Peter Turner retired from the Board on 30 May 2022.

Key Board activity

Set out below are highlights of the matters the Board considered in 2022. Not all of the matters the Board considered are listed, therefore this should not be considered an exhaustive list of activities.

February

- > Strategic priorities overview
- > Approval of capital expenditure
- > Approval of 2021 annual results and dividend policy
- > 2021 'Your Voice' survey results
- > 2021 Board performance evaluation actions
- > Update from the independent trustee of UK Pension Scheme

April

- > Investor feedback on 2021 results

May

- > Approval of trading update
- > Approval of capital expenditure
- > Broker updates
- > Inclusion & Diversity update
- > Review feedback from shareholders pre AGM and review proxy voting results
- > IT update

June

- > Group strategy review
- > Global business unit (GBU) strategy reviews
- > Modern Slavery & supplier engagement
- > Corporate Governance Code compliance
- > Key risks update
- > Insurance renewal

July

- > Group Strategy update
- > GBU strategy reviews
- > Approval of 2022 interim results and dividend policy
- > 2021 Board performance evaluation update
- > Pension update
- > Treasury update

September

- > Monitoring and assessment of culture
- > Group Portfolio Strategy update
- > Talent, leadership, capability and succession update
- > Approval of capital expenditure
- > Ethics update
- > Investor feedback on 2022 interim results
- > Capital allocation
- > RCF refinancing
- > Funding for UK pension schemes

November

- > Approval of trading update
- > Defence strategy review
- > IT update
- > ERP Project update

December

- > 2022 Board performance evaluation results
- > Group risk review
- > Approval of capital expenditure

Standing agenda items

In addition to the matters shown on the 2022 timeline, at each meeting the Board received strategic, operational and financial updates from the Chief Executive Officer and Chief Financial Officer. The Board also received updates from the Environmental, Health, Safety & Sustainability (EHSS) Director and Group Company Secretary.

Chief Executive Officer's report

At every Board meeting, the Chief Executive presented a paper covering topics such as:

- > safety
- > business, markets and customers
- > acquisitions and divestments
- > investor meetings
- > information systems and technology
- > key project and GBU updates
- > people.

The Chief Executive's report incorporates matters relating to strategy and matters discussed at Executive Committee meetings.

Chief Financial Officer's report

At every Board meeting, the Chief Financial Officer presented on topics such as:

- > Group and GBU financial performance
- > investor engagement and feedback
- > capital allocation
- > refinancing
- > pensions.

Further information about the refinancing and funding of the pension schemes can be found in the s.172 statement on pages 28 to 29.

EHSS update

At every Board meeting, the EHSS Director presented on topics such as:

- > Group safety performance
- > progress on safety initiatives
- > performance on environmental and sustainability matters and initiatives.

Company Secretary's report

At every Board meeting, the Company Secretary presented a paper on topics such as:

- > governance and regulatory matters
- > litigation update
- > share register analysis.

Non-executive Directors only session

At every Board meeting, the non-executive Directors met without management present.

Strategic oversight by the Board

Setting strategy

The Board reviews and agrees the strategy for the Group on an annual basis and reviews aspects of strategy at Board meetings during the year. The Board considers a wide range of matters when setting Group strategy including, but not limited to:

- > market overview
- > trends, including megatrends and those affecting customer behaviour
- > competitor environment
- > investor sentiment and shareholder returns
- > global business unit strategies
- > environmental, social and governance (ESG) and sustainability matters
- > finance
- > people and talent.

How governance contributes to the delivery of strategy

Details of how opportunities and risks to the future success of the business have been considered and addressed can be found in the Strategic Report on pages 40 to 47. Details of the sustainability of the Company's business model can be found in the Strategic Report on pages 12 to 13. Details of Morgan's governance framework which underpins the delivery of strategy can be found on page 75. An overview of Morgan's strategy can be found in the Strategic Report on pages 16 to 17 and 20 to 23.

The Board monitors progress against the strategic execution priorities underpinning delivery of the Group strategy.

- Big positive difference
- > Delight the customer
- > Innovate to grow

Strategic execution priorities



Progressing 2030 goals

Protect the environment

- > 50% reduction in scope 1 and scope 2 CO₂e emissions¹
- > 30% reduction in water use in high and extremely high stress areas
- > 30% reduction in total water usage

Provide a safe, fair and inclusive workplace

- > 0.10 lost-time accident rate
- > 40% of our leadership population will be female
- > Top quartile engagement score

What did the Board consider and approve?

Monitored strategic progress against 2030 business goals, ensuring clear and continued linkage to sustainable outcomes, meeting the strategic objective to create value for shareholders, stakeholders and society.

- > Reports from the EHSS Director on the progress of our journey towards zero harm, training being deployed to all employees focusing on our safety culture, investment in safety improvements and progress against our commitments to reduce waste, manage our water consumption, and reduce our emissions
- > Succession plans for the Executive Committee members and senior management
- > The results of the 2021 employee engagement survey, 'Your Voice'
- > The new five-year revolving credit facility which incorporates sustainability-linked performance targets which align with our ambitious sustainability plans

What were the material stakeholder considerations?

- > **Full stakeholder benefit.** The ability of Morgan's 2030 goals to deliver value for shareholders, stakeholders and society by driving towards net zero at pace, and in a socially just way
- > **Embedded in culture.** Employees and GBUs continue to embrace the 2030 goals as a long-term vision and symbol of Morgan's commitment to delivering social value through business operations
- > **Clear tracking of progress.** Shareholders engaged constructively on Morgan's 2030 goals, citing the importance of quantifiable criteria and meaningful linkage including when considering remuneration metrics

¹ Reduction targets shown are compared with a 2015 baseline.

2

Delight the customer

Investment in product and service offerings	Shape our product and service offerings further based on customer needs, with the overall objective of making our business more customer-centric.
What did the Board consider and approve?	<p>Opportunities to better align our product and service offerings to meet the needs of our customers.</p> <ul style="list-style-type: none"> Update on a voice of customer exercise to understand customer views from across the Group. Once complete, the results will be shared with the Board and will provide an additional route for the Board to understand customer views Capital investments to tailor our product, service and support offerings more closely to customer needs, based on customer feedback gathered during 2022 which enabled us to understand our customer segments in more detail
What were the material stakeholder considerations?	<ul style="list-style-type: none"> Addressing customer needs. The outputs and performance levels to deliver on stated customer priorities, including customer service, maintaining focus on safety, quality, delivery, inventory and productivity

"The more we understand our customers, their businesses, markets and technical challenges, the more effective we can be at providing them with a solution."

3

Innovate to grow

Sustainable solutions to support the energy transition	<p>Develop a diversified portfolio of sustainable solutions including:</p> <ul style="list-style-type: none"> Aerospace: Leading material for high efficiency engines Clean energy: Increasing lifetime and performance of solar, wind and energy storage Clean transportation: Superior materials for longer lifetimes Healthcare: Best-in-class materials and miniaturisation technology Semiconductors: Higher performance materials for the most demanding process steps Industrial: Higher efficiency solutions for industrial customers
What did the Board consider and approve?	<p>Opportunities to support the growth of Morgan's portfolio of sustainable solutions and to maintain a sustained pipeline of development opportunities.</p> <ul style="list-style-type: none"> Capital investments in our core markets to provide our customers with products and solutions that make them more sustainable Capital investments to increase our exposure to our four faster growing markets that reflect global trends: semiconductors, healthcare, clean energy, clean transportation
What were the material stakeholder considerations?	<ul style="list-style-type: none"> Strategic proposition. To ensure an acceptable investment case, the opportunities and risks of each investment are assessed across a range of criteria, including: fit with strategy, geographic and market economics, policy and societal context, revenue certainty and future return profile Risk and portfolio diversification. Diversification across geographies and technologies creates optionality, mitigates development risk, and exploits existing in-house capabilities.

Measuring and living our culture

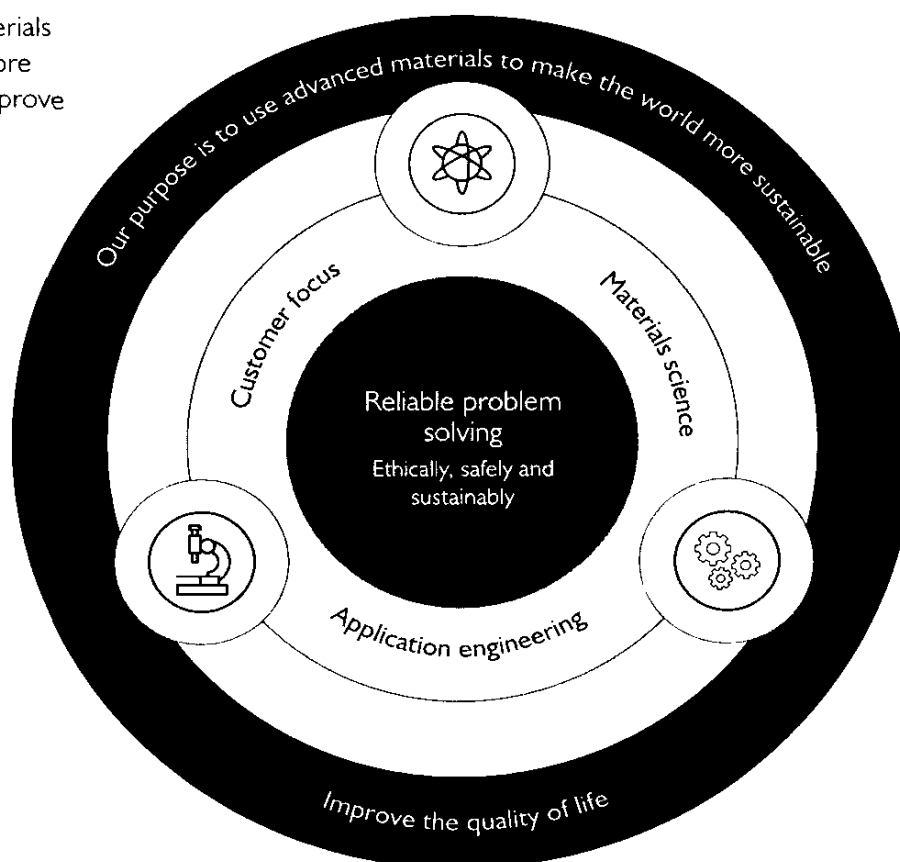
Culture at Morgan is underpinned by our purpose 'to use advanced materials to make the world more sustainable, and to improve the quality of life'.

Morgan's core values help define the behaviours of our people and underpin our purpose.

Our culture

Our purpose

To use advanced materials to make the world more sustainable, and to improve the quality of life.



Our leadership behaviours

- ✓ We are ambitious about the future
 - ✓ We build strong teams
 - ✓ We are relentless in driving performance
- Whilst ensuring that we are:
- Always working safely
 - Always working ethically
 - Treating our people fairly
 - Protecting our business

Our long-term sustainability

This purpose guides our actions; it underpins our work to reduce our environmental impact, informs how we treat our people, and ensures we fulfil our responsibility for good corporate governance.

How the Board measures and assesses culture

The Board is responsible for monitoring and assessing our culture. The Chair ensures that the Board is operating appropriately and sets the Board's culture which in turn forms the culture of the Company. The Chief Executive, supported by members of the Executive Committee, is responsible for ensuring the right culture and behaviours are embedded throughout the business and its operations and in all our dealings with our stakeholders.

The Board measures the culture of the Group using internal and external metrics which also enable it to identify further actions to ensure our culture remains appropriate. The Board considers the following:

➤ **Safety** – an area of paramount importance to our people, customers and partners, especially given the continuing impact of the COVID-19 pandemic. We continue to adapt business operations to ensure that our people, customers and partners can perform their roles safely and effectively. We closely monitor the developing situation and challenges to ensure we provide the appropriate requirements and support. The Board receives an update in person from the Director of Environment, Health, Safety and Sustainability at most Board meetings which contains safety statistics, both leading and lagging indicators, progress on safety initiatives and against the plan of work for the year, and details of serious incidents and root cause analysis. Safety performance is also part of presentations to the Board by the Presidents of the GBUs, proposals for capital expenditure, key risks and other ad hoc presentations to the Board. This enables the Board to gauge 'tone at the top'.

➤ **Employee retention** – our employees are our greatest asset and it is important that we do everything we can to retain them. We conduct an annual employee engagement survey – 'Your Voice'. The survey was conducted in November 2021 and 2022 to provide feedback to senior management to identify whether further actions were required. The feedback was reviewed by the Executive Committee with the findings reported to the Board.

➔ Further information on the actions taken as a result of the 2021 'Your Voice' survey during 2022 can be found on [pages 70 to 71](#)

➤ **Whistleblowing** – Morgan has an independent 'Speak Up' service through EQS to enable employees, customers, suppliers and third parties to report any concerns or wrongdoing anonymously without any fear of retaliation. The whistleblowing service and related internal procedures are structured to ensure that all reports are reviewed and investigated independently from the area of the business to which they relate, thereby minimising the risk of conflicts arising. All reports are copied to and reviewed by the Global Ethics and Compliance function. This helps to ensure transparency and enables any trends to be identified and addressed. Comprehensive information on the whistleblowing reports made is provided to the Audit Committee at each meeting and to the Ethics and Compliance Steering Committee, which comprises the members of the Executive Committee, Ethics and Compliance Director, Head of Internal Audit and Group Company Secretary. The updates to the Audit Committee include details of incident reports received in the period between meetings as well as details of ongoing investigations. Trends identified from these reports were escalated to, and considered by, the Board where they were considered to be inconsistent with the desired culture. The summary of reports to the 'Speak Up' hotline presented to the Audit Committee provided an insight into the frequency and type of issues being raised by employees and whether safety was

a particular concern.

➤ **Workforce engagement** – the non-executive Directors heard first-hand from employees during the employee listening sessions held during 2022. The non-executive Directors asked open questions and listened to the feedback from employees. Coupled with the Board site visits and presentations to the Board by those below the Executive Committee, this helps the Board to gauge the mood of the organisation.

➔ Further information on workforce engagement can be found on [pages 72 to 73](#)

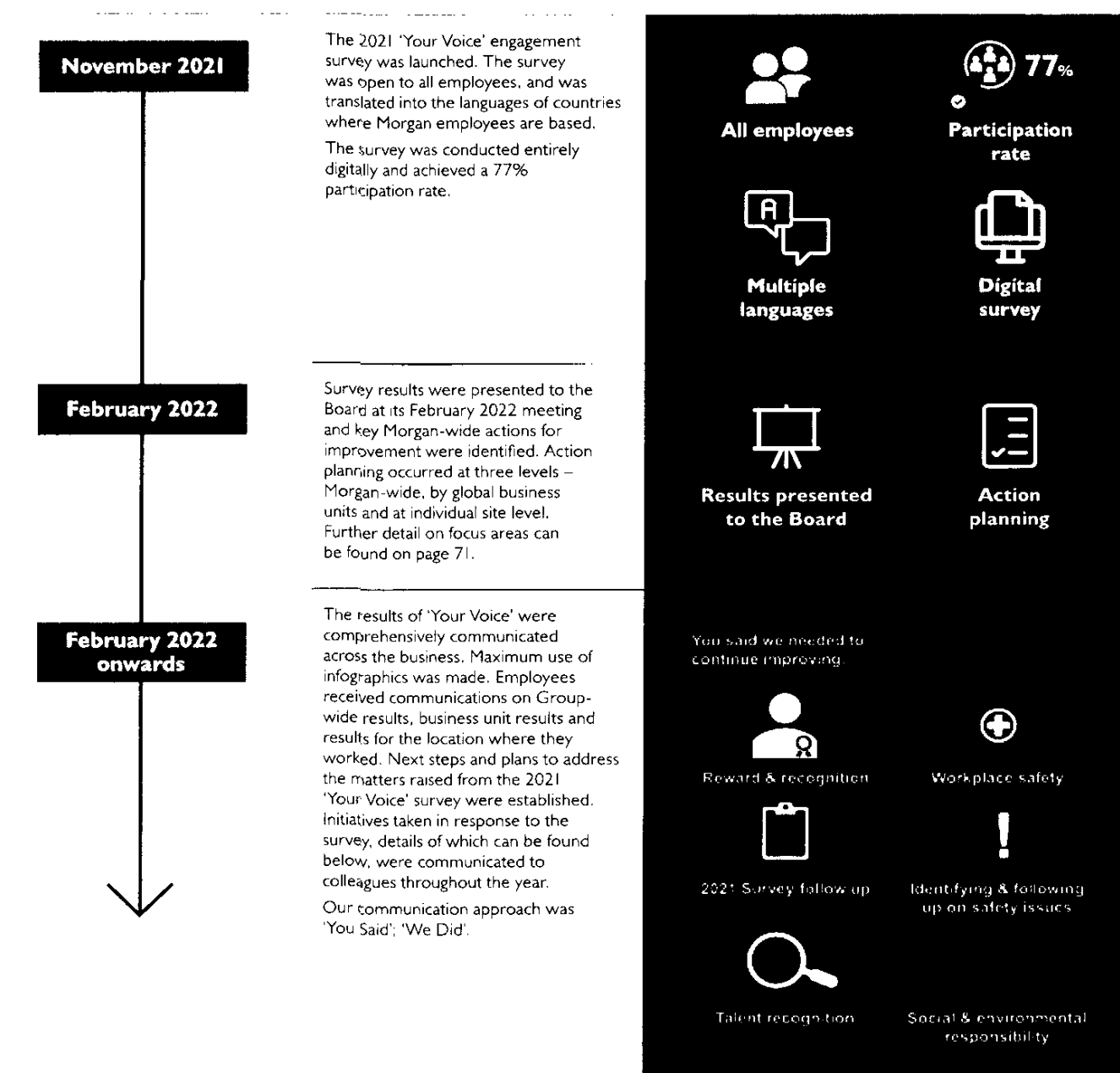
➤ **Alignment of remuneration and culture** – our purpose has never been more meaningful than in the present context, as the world continues to navigate the long-lasting impacts of the pandemic. Our incentive schemes are designed to drive behaviours consistent with the Company's purpose, values and strategy. We believe that our Remuneration Policy and its implementation are value-based, and will create sustainable momentum for the business, our people, our customers and our shareholders in the years to come, whilst also supporting the sustainable delivery of Morgan's clear and differentiated strategy.

➔ Further information on the remuneration policy can be on [pages 94 to 102](#)

Culture in action

'Your Voice' survey

Morgan's annual employee engagement survey, 'Your Voice', provides employees with the opportunity to give feedback on what is working well and what we could be doing differently to make Morgan a great place to work. The results of the survey provide feedback that can be acted upon by management to improve the experience of working at Morgan and provide the Board with a Group-wide snapshot of how employees rate Morgan's culture and employee engagement. A timeline with details of how this information reaches and is considered by the Board can be found below and on page 71.



'Your Voice' showed that employees recognise the priority that Morgan gives to health and safety, that our strategy and purpose were clear and that we work hard to exceed the expectations of our customers with innovative products and solutions. The majority of employees felt that they have a good work-life balance.

Our people said

Reward

Getting reward and recognition right across all our sites

What we did

- > We conducted a comprehensive review of our direct labour wage and benefits and where adjustments were required versus the local market, these were made
- > We introduced a pilot Morgan Employee Discount Scheme, which will be extended Company-wide, to help employees' money go further
- > A wide range of site-based recognition activities have taken place and family days introduced following the pause that was implemented during the pandemic
- > We launched an emergency childcare programme/childcare concierge service in the US

Purpose

Ensuring we have the right people in the right place at the right time to deliver our purpose

- > We are developing a modern employer brand to ensure we can attract as diverse a candidate pool as possible to reflect the communities in which we operate
- > We have introduced our licence to recruit programme, which all hiring managers are required to complete. This is to ensure we improve our recruiting processes and have inclusive hiring
- > We have strengthened our talent acquisition team so that it can operate in the Americas and EMEA
- > We have introduced a standardised approach to talent reviews
- > We launched three employee resource groups, as part of our drive to foster a diverse, inclusive workplace

Leadership

Greater visible leadership and two-way communication

- > We launched a bi-weekly all employee newsletter
- > We hold regular leadership calls, promote two-way communication via Yammer and have introduced regular Leadership Forums with members of the executive team and the wider workforce

Collaboration

Working together more at our sites, within GBUs and across GBUs

- > Cross-business groups have been established to work on key business priorities
- > Our leadership development cohorts are deliberately constructed to ensure maximum cross-business unit interaction

Listening to employees

The Board is at the forefront of the journey to Morgan making a 'Big positive difference' and is keen to understand the views of all employees and the impact its decisions have on them. For this reason, the Board took the decision that all non-executive Directors should have the opportunity to engage with the workforce, rather than limit this important role to a designated non-executive Director. Furthermore, given the global nature of the business, having all of the non-executive Directors participate increases the Board's reach. The non-executive Directors participated directly in employee engagement initiatives and carried out a full programme of activities during the year.

The insights from these engagements add an important perspective to Board

discussions and decisions. This ensures employee voices are heard and considered as the Board makes decisions that influence the future of Morgan. The outputs from the discussions are fed back to the leadership team for further discussion with the Chief Executive Officer and Group HR Director and reported back to the next Board meeting, to create a greater awareness of the views of employees amongst the whole Board. Follow-up discussions were held with site managers to convey key themes, foster a positive culture and, where there were specific matters raised, to ensure those matters were considered and appropriately addressed.

While each event varies in structure, generally the non-executive Directors

have a tour or receive an overview of the site followed by an informal session with the site teams without managers present. No specific topics for discussion are provided in advance, though site teams are advised that the Directors would like to hear from them about their experience of working at Morgan, whether they have any challenges, concerns or ideas for improvement, and the things that they consider Morgan does well. Coupled with meetings with employees in their place of work during Board visits to Morgan facilities and during other Morgan events, the Board is satisfied that this provides a range of effective methods with which to engage with employees, despite not being one of the methods set out in the Code.

Actions taken in response to feedback received from employee listening sessions



Positive feedback	Improvement areas	Actions taken
Training and career progression Several colleagues praised the access to training and development opportunities at Morgan. Leadership development courses were described as enabling collaboration across GBUs, functions and countries. They were diverse and inclusive, with positive acknowledgement of the encouragement and support for the courses from managers. The Percipio learning platform helped colleagues access Morgan's full Learning & Development offering.	There was a request for reinforcement of the learning from the leadership development courses with a refresher to prevent fallback to old habits. Some colleagues raised a lack of clarity on what training is available to them and how to access this.	The feedback from colleagues attending these courses has been used to develop the courses further. Opportunities to incorporate the learnings from the courses when back in the business are explored with attendees. Attendees are also encouraged to maintain the networks that they develop through the courses. Percipio and the courses available through the platform are regularly advertised through the Morgan Group Communications e-newsletter.
Recruitment and retention Colleagues recognised the benefits of working in Morgan including the flexible working hours, job security, training and importance placed on safety in the organisation but considered that there was more work to do to strengthen employer brand awareness.	Some colleagues noted the ageing demographic of the workforce and the need to recruit younger colleagues to ensure the transfer of skills.	We are developing a modern employer brand to ensure we can attract as diverse a candidate pool as possible. More information on this and other action we have taken to strengthen our recruitment and retention can be found on page 71. We conducted a comprehensive review of our direct labour wage and benefits and, where adjustments were required versus the local market, these were made. A number of other benefits were also introduced and more information about this can be found on page 71.
Collaboration across the GBUs Different sites were working together to establish best practice across the board. This was further enabled by the leadership development courses which encouraged collaboration.	There was however not always a systematic approach to working together to improve processes and procedures.	Various actions have been taken to encourage collaboration and share learnings between the GBUs including the two-day meeting of the EHSS Group and GBU leadership teams with a key focus to make a Big positive difference in 2023.

Engagement with employees and other stakeholders

Non-executive Directors and employee listening activities

2022

Engagement with other stakeholders

 <p>Quarterly Virtual All Hands were held by the Chief Executive and Chief Financial Officer throughout the year, with colleagues invited to join.</p>	Guest speaker at the Internal Audit Conference	Feb	Feb - Apr Engagement meetings were held with a significant proportion of major shareholders on remuneration policy matters. The Board met with the independent trustee of the UK pension scheme at its meeting in February.	 <p>Ad hoc meetings were held with brokers and institutional investors throughout the year, including attendance at investment conferences</p>
	Virtual engagement session with colleagues on Ignite Leadership Development Programme (two sessions)	Mar	Following publication of the FY21 results, one-to-one meetings were held with institutional investors and potential investors. The Board reviewed the feedback from investors and potential investors to gauge investor sentiment and establish whether their expectations have been met. Meetings were held with banks to present FY21 results.	
	Virtual engagement session in Pachua, Mexico (Thermal)	Apr		
	Virtual engagement session in Certech, Wilkes-Barre (Thermal Ceramics)	May	The 2022 Annual General Meeting was held in Windsor. Shareholders put questions to the Board in person. Shareholders not attending were able to submit their questions ahead of the meeting. The Board encouraged shareholders to appoint the Chair of the AGM as their proxy and provide voting instructions in advance of the meeting in accordance with the instructions set out in the Notice of AGM. At the meeting, all resolutions were passed, with more than 89% of the votes cast in favour.	
	Virtual engagement session in Swansea, UK (Electrical Carbon)	Jun		
		Jul	Following publication of the HY22 results, meetings were held with institutional shareholders and potential investors. The Board reviewed the feedback from investors to gauge investor sentiment and establish whether their expectations have been met.	
		Aug	Meetings were held with banks to present HY22 results.	
	Board visit and site tour in Kempton, Germany (Thermal Ceramics) European Employee Forum event in Windsor, UK	Sep	Sep - Nov Meetings were held with banks to discuss revolving credit facility refinancing.	
	Guest speaker at Thermal Ceramics Global and Regional Leadership Conference	Oct	Oct - Dec Meetings were held with pension trustees to discuss the de-risking of UK pension schemes.	
	Site tour in Swansea, UK (Electrical Carbon)	Nov		
		Dec	The Chief Executive Officer, Chief Financial Officer and members of the Executive Committees held a Capital Markets Event to provide more detail on the key areas of differentiation that we believe will drive outperformance in the years ahead, benefitting all our stakeholders. The Chairman introduced the event and met with investors. Meetings were held with banks to present HY22 results.	

Assessing Board performance

An internal review of the Board's performance was undertaken in 2022, following the externally-facilitated review in 2021. Both reviews were facilitated by Clare Chalmers Limited, which has no other relationship with the Company or the individual Directors and is independent.

The evaluation of the Board and its Committees was undertaken via the completion of tailored questionnaires prepared by Clare Chalmers Limited, in consultation with the Chair and Company Secretary and taking into account the recommendations from the 2021 Board performance review. The views of Directors were consolidated into formal reports which were discussed by the Chair with individual Directors and then in a plenary session by the Board and the relevant Committees. A questionnaire was also sent to the Group Company Secretary to obtain her perspectives on the effectiveness of the Board and its Committees. The Chair held one-to-one meetings with individual Directors to evaluate their performance. Led by the Senior Independent Director, the non-executive Directors met without the Chair present to appraise the Chair's performance.

The Board concluded that it, its Committees and the individual Directors had continued to operate effectively and fully discharged their responsibilities during 2022.

Recommendations from the 2021 Board performance review

Incorporation of discussions on different aspects of Group strategy during the year.

A review of the way risk is presented to the Board to encourage focus on the key risks and risk appetite.

Adjustments to be made to the scheduling of certain Committee meetings so that more time is allowed for discussion.

Format of presentations to the Board would be reviewed to encourage discussion on the key points.

More regular reporting on people matters by the Group HR Director would be provided to the Board.

Highlighted strengths

- Input of management to the Board, noting management is open, balanced and transparent, and that there is an inclusive and productive process of taking away Board inputs for further deliberation, and bringing them back to close the loop
- There was also positive feedback for the non-executive Directors in terms of sharing their broader perspectives and experiences, to identify weak signals, which may present challenges in future, at an early stage
- The highest scoring was around employee listening sessions which were considered to be really valuable since all non-executive Directors participate directly, and all have first-hand information - improvement opportunities are fed back to the executives who then focus on the resolutions
- The Committees all received high scores across all questions including the feedback on the Nomination Committee which noted the successful transition of the Chief Financial Officer and upcoming Chair succession. The feedback on the Audit and Remuneration Committees noted the support they receive from management and its advisers, with the only suggestions of enhancements being around getting stakeholder views and demonstrating this

Recommended areas for development and actions going forward

- More in-person meetings, including Board dinners, would be arranged for 2023
- Further discussions of risk and risk appetite would take place in 2023, in light of the worsening macro-economic environment
- More information would be provided to the Board on the Group's customer and supplier base, trends and priorities
- More structured individual feedback would be provided to Directors. These meetings took place in December 2022

Actions taken during 2022

Several dedicated strategy discussions were held in 2022 and were well received by the Directors. The 2022 evaluation concluded that the review of strategy and focus on strategic priorities, with more time allocated for strategic discussions, helped the Board to digest the key themes, with valuable discussions around development, growth markets, and portfolio strategy.

The presentation of the key risks was reviewed during the year with a view to eliminating risks which do not fundamentally constitute a risk to life nor the value of the Group and ensuring alignment of risks with Group strategy.

The Audit Committee meetings were held on a separate day to the Board meetings in 2022, allowing more time for discussions. The 2022 evaluation concluded that agenda planning and the changes to the scheduling of the Board and Committee meetings had improved energy levels and focus.

Format of presentations and papers was reviewed and updated. The 2022 evaluation concluded that the papers and presentations to the Board had resulted in improved Board discussions.

The Group HR Director reported to the Board on three aspects of the Group's people strategy during 2022.

UK Corporate Governance Code 2018 compliance statement

The Corporate Governance Report, which includes the principal Committee Reports and Directors' Report, explains how the Board has applied the principles and complied with the provisions of the UK Corporate Governance Code 2018 (the Code), which is available at www.frc.org.uk.

The Board has applied the principles and complied with the provisions of the Code throughout the year ended 31 December 2022, except for provision 38 which requires pension contribution rates for executive Directors to be aligned with those available to the wider workforce.

As stated in the 2021 Annual Report and the 2022 Remuneration Policy, newly appointed executive Directors' pension contributions are now aligned to the wider workforce from appointment.

Incumbent executive Directors were on higher pension contribution rates until 31 December 2022, after which they were aligned to UK workforce rates, ensuring compliance with the Code going forward. Further information can be found in the Directors' Remuneration Report on pages 90 to 116.

Application of Code Principles

The table below sets out how the Board has applied the Code Principles during 2022.

Board leadership and company purpose

A. The role of the Board

The Board is responsible for Morgan's system of corporate governance. As such, Directors are committed to developing and maintaining high standards of governance that reflect evolving good practice.

The Board provides strategic and entrepreneurial leadership within a framework of strong governance, effective controls and an open and transparent culture. This enables opportunities and risks to be assessed and managed appropriately. The Board also sets our strategic aims and risk appetite, makes sure that we have the financial and human resources in place to meet our objectives, and monitors our compliance and performance against targets. Lastly, the Board ensures that we engage effectively with all our stakeholders and consider their views in setting our strategic priorities. Morgan's section 172 statement detailing how the Board has engaged with the Group's stakeholders and approached decisions made during the year can be found in the Strategic Report on pages 28 to 29.

Governance framework		
Board		
Audit Committee Helps the Board to monitor decisions and processes designed to ensure the integrity of financial reporting, the independence and effectiveness of the external auditor, and robust systems of internal control and risk management. → See page 79	Nomination Committee Helps the Board determine its composition, and that of its Committees. They are regularly reviewed and refreshed, so they are able to operate effectively and have the right mixture of skills, experience and background. → See page 86	Remuneration Committee Helps the Board ensure that remuneration policy and practices reward employees and executives fairly and responsibly, with a clear link to corporate and individual performance. → See page 90
Executive Committee <ul style="list-style-type: none"> Drives Group and global business unit strategic implementation Delivers operational, financial and non-financial performance Reviews health, safety and environmental performance, drives improvement and embeds the safety culture Approves Group policies and reviews their implementation and effectiveness Leads on assessment and control of risk Oversees prioritisation and allocation of resources 	Disclosure Committee <ul style="list-style-type: none"> Assists and inform the Board concerning the identification of inside information Recommends how and when the Company should disclose such information Ensures any such information is managed and disclosed in accordance with all applicable legal and regulatory requirements 	General Purpose Committee <ul style="list-style-type: none"> Approves opening of/changes to bank accounts Approves arrangements with financial institutions Approves guarantees and indemnities Approves substantive intra-Group loans Approves intra-Group dividends and capital restructuring Approves awards under the Company's share schemes (after Remuneration Committee approval) and any Employee Benefit Trust-related loans

UK Corporate Governance Code 2018 compliance statement continued

Board leadership and company purpose continued

A. The role of the Board continued	<p>There is a formal schedule of matters reserved for the Board that sets out the structure under which the Board manages its responsibilities providing guidance on how it discharges its authority and manages the Board's activities. The schedule of matters reserved is reviewed and approved by the Board on an annual basis. Our governance framework means we have a robust decision-making process and a clear framework within which decisions can be made and strategy can be delivered. Our delegated authority framework ensures that decisions are taken by the right people at the right level with accountability up to the Board, and enables an appropriate level of debate, challenge and support in the decision-making process.</p> <p>The Board met eight times in 2022 and all Directors continue to act in what they consider to be in the best interests of the Company, consistent with their statutory duties. Further details of 2022 Board meetings, including information on the Board's assessment of strategic and operational matters, are set out on pages 65, attendance information on page 64, and skills, experience and biographical information on pages 62 to 64.</p> <p>A description of Morgan's business model is set out on pages 12 to 13. An assessment of the principal risks facing the Group is included on pages 40 to 47.</p> <p>Potential conflicts of interest are reviewed annually and powers of authorisation are exercised in accordance with the Companies Act and the Company's Articles of Association. During the year, if any Director has unresolved concerns about the operation of the Board or the management of the Company, these would be recorded in the minutes of the meeting.</p>
B. The Company's purpose, values and strategy	<p>Our purpose is to use advanced materials to make the world more sustainable, and to improve the quality of life. The Board believes that a healthy culture, which drives the right behaviours, protects and generates value and helps employees engage with the Morgan Code, will lead to the successful delivery of our strategy. It is responsible for defining our values and setting clear standards from the top. Our Chair leads the way by ensuring the Board operates correctly and with a clear culture of its own which can be promoted to our wider operations and dealings with all stakeholders. Our Chief Executive Officer, with the help of the Executive Committee, is responsible for the culture within our wider operations. The Board receives regular reports that allow it to assess our culture to ensure it continues to support our strategy and purpose. For more information, see page 69.</p>
C. Resources and controls	<p>The Board annually approves the Group's annual budget ensuring that sufficient resources are available to achieve objectives.</p> <p>The Board retains ultimate responsibility for risk management and internal controls, with detailed oversight carried out by the Audit Committee.</p> <p>The Board sets the Group's risk appetite. This sets out the principal risks facing the Group and the nature and extent of risk the Board is willing for the Group to take in order to achieve the Group's strategic objectives. For more information, see pages 40 to 47.</p>
D. Shareholders and stakeholders	<p>The Board acknowledges the importance of forming and retaining sound relationships with all stakeholder groups. Accordingly, the Board reviewed and discussed the Group's key stakeholders along with the engagement mechanisms in place to ensure that they support effective, two-way communication. These are kept under periodic review to ensure ongoing effectiveness.</p> <p>The Board engaged actively throughout 2022 with shareholders and other stakeholders. A full programme of formal and informal events, institutional investor meetings and presentations is held throughout the year. This programme of shareholder engagement aims to ensure that the performance, strategies and objectives of the Group are clearly communicated to the investment community and provides a forum for institutional shareholders to address any issues. Morgan engages proactively with the investment community and sell-side and buy-side analysts and accommodates requests for meetings and calls with senior management from existing and potential institutional investors. The programme is led by the executive Directors. The Chair of the Remuneration Committee also held a series of investor consultation meetings in connection with votes relating to the Directors' Remuneration Policy at the Company's 2022 Annual General Meeting. The Board is regularly kept informed of investor feedback, stockbroker updates and detailed analyst reports. For more information, see pages 65 and 73.</p> <p>The Board receives regular management information and considers the impact of decisions on relevant stakeholders, as described further in the section 172 statement on pages 28 to 29. Across the Group, there is an active programme of engagement with our key stakeholders including our colleagues. For more information, see page 73.</p>
E. Workforce policies and practices	<p>The Board has overarching responsibility for the Group's workforce policies and practices and delegates day-to-day responsibility to the Chief Executive Officer and Group HR Director to ensure that they are consistent with the Company's values and support its long-term success.</p> <p>Employees are able to report matters of concern confidentially through our 'Speak Up' hotline. The Audit Committee routinely reviews reports generated from the disclosures and ensures that arrangements are in place for investigation and follow-up action as appropriate.</p>

Division of responsibilities

F. Role of the Chair	<p>Douglas Caster leads the Board in an open and transparent manner, encouraging debate and challenge. He plays a pivotal role in fostering the effectiveness of the Board and the individual Directors both in and outside the boardroom. <i>He was considered to be independent upon his appointment as Chair.</i></p> <p>The Chair works with the Group Company Secretary to ensure that sufficient time is available to discuss agenda items for each Board meeting and to ensure that papers are of a high standard and circulated in a timely manner.</p>
G. Balance of the Board	<p>The Board comprises the Chief Executive Officer, Chief Financial Officer, Chair and five independent non-executive Directors. For more information, see page 64.</p> <p>The roles of the Chair and Chief Executive are separate, with distinct accountabilities set out in their role profiles. The Chief Executive Officer is responsible for the day-to-day leadership and management of the business, in line with the strategic framework, risk appetite and annual and long-term objectives approved by the Board. The Chief Executive Officer cascades his authority through a delegated authority framework which is approved by the Board annually.</p> <p>The Board undertakes an annual review of the independence of each non-executive Director and in 2022 continued to consider each non-executive Director to be independent.</p>
H. Non-executive Directors	<p>The non-executive Directors provide an independent view on the running of our business, governance and boardroom best practice. They oversee and constructively challenge management in its implementation of strategy within the Group's system of governance and the risk appetite set by the Board.</p> <p>Prior to his or her appointment as a Director, the Board considers whether each non-executive Director has sufficient time to devote to their role at Morgan. This is reassessed by the Nomination Committee annually and in light of any changes to a non-executive Director's external commitments during the year. The Committee is satisfied that their other duties and time commitments do not conflict with those as Directors. The Board considered Clement Woon's other external commitments, and was comfortable that he had sufficient time to devote to his role at Morgan, before agreeing his appointment as a non-executive Director of Elementis plc.</p> <p>Laurence Mulliez was appointed as Senior Independent Director in December 2017. She is available to liaise with shareholders who have concerns that they feel have not been addressed through the normal channels of the Chair, Chief Executive Officer and Chief Financial Officer. She also leads the annual performance review of the Chair (see page 74), and as necessary, provides advice and judgement to the Chair, and serves as an intermediary for other Directors.</p> <p>After each Board meeting, the non-executive Directors and the Chair meet without executive Directors being present.</p>
I. The Company Secretary	<p>Winifred Chime joined Morgan as Group Company Secretary in July 2022. She is responsible to the Chair for ensuring that all Board and Board Committee meetings are properly conducted, that the Directors receive appropriate information prior to meetings to enable them to make an effective contribution, and that governance requirements are considered and implemented. The appointment and removal of the Group Company Secretary is a matter for the Board.</p>

Composition, succession and evaluation

J. Board appointments	<p>The Nomination Committee and, where appropriate, the full Board, regularly review the composition of the Board and the status of succession to both senior executive management and Board-level positions. Directors have regular contact with and access to succession candidates for senior executive management positions.</p> <p>During 2022, the Board appointed the Chief Financial Officer, Richard Armitage, and Chair designate and independent non-executive Director, Ian Marchant. The Company engaged the independent executive search agency Korn Ferry to assist with the search for Ian. For information on the Nomination Committee, including appointments and Directors' induction, see pages 86 to 89.</p> <p>All Directors retire at each AGM and may offer themselves for re-election by shareholders. Accordingly, all the Directors will retire at the AGM in June 2023. The Notice of AGM will give details of those Directors seeking election or re-election.</p>
K. Skills, experience and knowledge of the Board	<p>The Nomination Committee regularly reviews the balance, composition and structure of the Board, including reviewing the skills of each non-executive Director against a skills matrix. This identifies the key skills, knowledge and experience relevant to the markets in which Morgan operates and for the effective operation of the Board and leadership of the Group. The Directors' skills matrix was revised and enhanced during the year. For more information, see page 64.</p> <p>The Nomination Committee keeps the length of service of each Board member under review, and recommends the reappointment of the non-executive Directors and any extensions to their term. It ensures that Board recruitment is commenced in a timely manner to regularly refresh the membership of the Board.</p> <p>The Chair and Group Company Secretary ensure that new Directors receive a full induction and that all Directors continually update their skills and have the requisite knowledge and familiarity with the Group to fulfil their role. The individual training and development needs of each Director are considered by the Chair on an annual basis. The Board receives detailed technical updates on corporate governance and other regulatory changes, presentations from external specialists or internal managers, training via online platforms, and site visits to ensure its skills, knowledge and experience are kept up to date.</p>

UK Corporate Governance Code 2018 compliance statement continued

Composition, succession and evaluation continued

L. Annual evaluation	The Board undertakes either an internal or external annual Board effectiveness evaluation. The last external evaluation was carried out in 2021, so in 2022 an internal evaluation of the Board and its Committees was conducted. Performance evaluations of Directors, including the Chair, are also carried out on an annual basis. A summary of the 2022 evaluation is set out on page 74.
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Audit, risk and internal control

M. Audit functions	The Audit Committee comprises four independent non-executive Directors and the Board delegates a number of responsibilities to the Audit Committee, including oversight of the Group's financial reporting processes and internal control, and the work undertaken by the external and internal auditors. The Committee also supports the Board's consideration of the Company's viability statement and its ability to operate as a going concern. The Audit Committee Chair provides regular updates to the Board on key matters discussed by the Committee. For more information, see page 79.
N. Fair, balanced and understandable assessment	The Strategic Report, located on pages 2 to 59, sets out the performance of the Company, the business model, strategy, and the risks and uncertainties relating to the Company's future prospects. When taken as a whole, the Directors consider the Annual Report is fair, balanced and understandable and provides information necessary for shareholders to assess the Company's performance, business model and strategy. The process which supports the Board's confirmation that the presentation of results is fair, balanced and understandable is set out in the Audit Committee Report on page 80.
O. Risk management	<p>The Board determines the nature and extent of the principal risks the organisation is willing to take to achieve its strategic objectives. A robust assessment of the principal and emerging risks facing the Group was carried out during the year, including those risks that would threaten the Group's business model, future performance, solvency or liquidity and reputation (see pages 41 to 47 for further details of the principal risks).</p> <p>The Board and Audit Committee monitor the Group's risk management and internal controls systems and conduct an annual review of their effectiveness. Throughout the year, the Board has directly, and through delegated authority to the Executive Committee and the Audit Committee, overseen and reviewed all material controls, including financial, operational and compliance controls. See pages 41 to 47 and 83 to 84.</p>

Remuneration

P. Remuneration policies and practices	The Company aims to reward employees fairly and its Remuneration Policy is designed to promote the long-term success of the Company whilst aligning the interests of both the Directors and shareholders. An updated remuneration policy was approved by shareholders at the 2022 Annual General Meeting. The Directors' Remuneration Policy is set out on pages 94 to 102.
Q. Policy on executive remuneration	The Remuneration Committee, on behalf of the Board, sets the remuneration of the Chair, the executive Directors and Executive Committee members. It also reviews the remuneration of certain senior management. In setting remuneration, the Remuneration Committee seeks to ensure it is aligned with the Group's remuneration principles which are applicable to all colleagues. See pages 115 for more information on the work of the Remuneration Committee.
R. Remuneration outcomes	When determining remuneration outcomes, the Remuneration Committee takes account of wider circumstances relevant to that decision, including Group and individual performance. The Remuneration Committee has the discretion to amend the final vesting level of incentives if it does not believe that it reflects underlying performance. The Remuneration Committee may also apply malus and clawback in certain circumstances. No Director is involved in determining their own remuneration outcome.

Report of the Audit Committee



Committee members

I am pleased to present the Committee's report for 2022. This report provides insight into key areas considered by the Audit Committee during the year in discharging its responsibilities in relation to financial reporting, risk management, internal control, the internal audit function, and interaction with Deloitte LLP (the Group's external auditor).

The Committee has also reviewed the independence and effectiveness of the audit process, in establishing positive relationships and providing a good level of service to the Group, whilst seeking continual improvements in the audit of Morgan.

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Dear shareholder

I am pleased to present the Audit Committee's report for 2022. This report provides insight into key areas considered by the Audit Committee during the year in discharging its responsibilities in relation to financial reporting, risk management, internal control, the internal audit function, and interaction with Deloitte LLP (the Group's external auditor).

During 2022, whilst the Committee's primary focus centred on the accuracy of the Group's financial reporting, we have applied additional focus to assess the risk management and internal control framework, together with the additional work carried out to support the long-term viability statement. Regardless of the challenging macro-economic environment, Morgan's business model remains resilient, but like other companies operating during these challenging times, we continue to support and closely monitor the financial results of the Group.

In early January 2023, we were called on to manage the consequences of a cyber security incident, having detected unauthorised activity on our network. Immediate steps were taken to contain the incident, launch incident response plans, engage specialist support services and embark on restoring systems. The Committee oversaw the work to contain the incident and recover the systems, was in regular communication with management throughout this period and met with the third-party advisers supporting the restoration of our networks and systems. Details of the incident can be found on page 19 and further information on the matters considered by the Committee can be found on page 82.

The Committee continues to monitor the external ESG reporting and, more specifically, climate-related reporting, in order to assess the appropriateness of the climate-related disclosures and evaluate if

the Task Force on Climate-related Financial Disclosures (TCFD) recommendations have been addressed appropriately.

We advised the Board that the 2022 Annual Report and Accounts is fair, balanced and understandable and provides the necessary information for our shareholders to assess the Group's position, performance, business model and strategy. The process of review is described in greater detail on page 80.

Deloitte completed their third full audit of the Group. During the year, the Committee reviewed and agreed the independence and effectiveness of the audit process, in establishing positive relationships and providing a good level of service to the Group, whilst seeking continual improvements in the audit of Morgan.

We monitored the reports raised through the ethics hotline and ensured that executive management has responded to these quickly and appropriately. The Committee reviewed the key themes and trends in the number, type and source of these reports to gain an understanding of how effectively the Morgan Code of Conduct is embedded. This information has been used by the Board as part of its assessment of Morgan's culture.

Throughout the year, the Committee also ensured that separate meetings with Deloitte, the Head of Internal Audit and the Director of Ethics and Compliance took place without management present in order to provide an open forum for any issues to be raised.

The Committee's performance was reviewed as part of the internal evaluation aimed at identifying areas for improvement. I am pleased to report that the Committee is continuing to work well and is fully discharging its responsibilities, whilst contributing effectively to the Group's overall governance framework.

Jane Aikman
Committee Chair

Report of the Audit Committee continued

Key activities in 2022

Financial reporting	<ul style="list-style-type: none">➤ Reviewed and discussed reports from the Chief Financial Officer on the financial statements, considered management's significant accounting judgments and the policies being applied, and assessed the findings of the statutory audit in respect of the integrity of the financial reporting of full- and half-year results.➤ Reviewed the 2022 Annual Report and Accounts and provided a recommendation to the Board that, as a whole, they complied with the UK Corporate Governance Code principle to be 'fair, balanced and understandable and provide the information necessary for shareholders to assess the Company's position, performance, business model and strategy'.
Internal controls and risk management	<ul style="list-style-type: none">➤ Reviewed the effectiveness of the Group's risk management and internal control systems, and integration of the components of the risk framework into Board and Committee reporting, prior to making a recommendation to the Board. The Committee also reviewed reports from the Presidents and Finance Directors of each of the global business units on their key risks, how these risks are managed and an assessment of the control environment, on an annual basis.➤ Monitored fraud reporting and incidents of whistleblowing, including a review of the adequacy of the Group's whistleblowing processes and procedures, prior to reporting to the Board on this activity.➤ Oversight of the Group's ethics and compliance programme and monitoring progress in compliance with the Morgan Code across the Group.➤ Oversight and monitoring of the Group's key taxation issues and tax strategy.
Internal Audit	<ul style="list-style-type: none">➤ Considered Internal Audit reports presented to the Committee and satisfied itself that management had resolved or was in the process of resolving any outstanding issues or actions.➤ Reviewed and approved the Internal Audit plan and approach for 2023.➤ Reviewed the quality and effectiveness of Internal Audit function.
External Audit	<ul style="list-style-type: none">➤ Oversaw the 2022 statutory audit, including the key audit risks and level of materiality applied by Deloitte, audit reports from Deloitte on the financial statements and the areas of particular focus for the 2022 audit.➤ Assessed the effectiveness of Deloitte and made a recommendation to the Board on the reappointment of Deloitte as the external auditor.➤ Agreed the statutory audit fee for the 2022 audit.➤ Reviewed and approved the non-audit services, and related fees, provided by Deloitte for 2022.

Financial reporting

Fair, balanced and understandable reporting

At the request of the Board, the Committee has considered whether, in its opinion, this Annual Report and Accounts, taken as a whole, is 'fair, balanced and understandable' ('FBU') and whether it provides the 'information necessary for shareholders to assess the Company's position, performance, business model and strategy'.

The following process was followed by the Committee in making its assessment:

- 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 of the Annual Report
- received confirmation from external advisors 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 consolidated 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 Board approved the Committee's recommendation that the FBU statement could be made, which can be found in the Directors' Responsibility Statement on page 120 of this Annual Report.

Significant issues

The significant areas of judgement considered by the Committee in relation to the 2022 consolidated financial statements, and how these were addressed, were as follows:

Significant issues and judgements

Specific adjusting items

In the consolidated income statement, the Group presents specific adjusting items separately. In the judgement of the Directors, as a result of the nature and value of these items they should be disclosed separately from the underlying results of the Group. The Group believes that these Alternative Performance Measures, which are not considered to be a substitute for, or superior to, IFRS measures, provide stakeholders with additional helpful information on the performance of the business.

Details of specific adjusting items arising during the year and the comparative period are given in note 6 to the consolidated financial statements. Specific adjusting items in relation to discontinued operations are disclosed in note 9 to the consolidated financial statements.

How the Committee addressed these issues

The Committee reviewed the key assumptions underpinning the accounting for specific adjusting items for the half- and full-year results, including receiving presentations from Deloitte LLP on this matter.

Provisions and contingent liabilities

Provisions made for:

- legal and other provisions: given the nature of the contracts undertaken by the Group, there is an inherent risk of claims being made against one or more of the Group's businesses in relation to performance on specific contracts
- environmental provisions: due to the nature of its operations, the Group holds environmental provisions for its environmental obligations. Judgement is required to determine whether a contingent liability has crystallised into a provision
- closures and restructuring provisions: judgements made in relation to provisions made in relation to the Group's restructuring activities.

These claims can include risks for which the Group has external insurance coverage.

How the Committee addressed these issues

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.

Deloitte LLP also regularly present their view on all material provisions and contingent liabilities. Environmental provisions are disclosed in note 24 to the consolidated financial statements.

Pensions and other post-retirement employee benefits

The Group operates a number of defined benefit arrangements as well as defined contribution plans. The defined benefit plans primarily related to the UK, US and Europe and predominantly provide pensions based on service and career-average pay.

Accounting assumptions, given in note 22 to the consolidated financial statements, are used to calculate the year-end net pension liability in accordance with the relevant accounting standard, IAS 19 (revised) Employee Benefits. 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.

How the Committee addressed these issues

The Committee reviewed the key assumptions underpinning the accounting for these defined benefit arrangements for the half- and full-year results, including receiving presentations from Deloitte LLP on this matter.

Report of the Audit Committee continued

Financial reporting (continued)

Significant issues and judgements

Impairment of non-financial assets (excluding goodwill)

The Group monitors the performance of individual assets and cash-generating units at each balance sheet date to determine whether there is any indication of impairment. An impairment loss is recognised in the income statement where the carrying amount of an asset exceeds its recoverable amount.

The impairment charge for the year of £6.5 million relates to the impairment of assets in Seals and Bearings (Asia), Thermal Ceramics (Europe and South America) and Technical Ceramics (Asia). Additional disclosure is included in note 6 to the consolidated financial statements.

How the Committee addressed these issues

The Committee reviewed the key assumptions that underpin the value-in-use calculations, including receiving the views of Deloitte LLP on these matters.

Matters identified following the FRC review of the 2021 Annual Report

The FRC reviewed the 2021 Annual Report and drew to the Company's attention changes which could be made to the 2022 Annual Report, where the information is material and of relevance. The FRC did not enter into substantive correspondence with the Company. The FRC asks that companies make clear the inherent limitations of their review, and that their review is based on Morgan's Annual Report and does not benefit from detailed knowledge of our business or an understanding of the underlying transactions entered into during the period.

How the Committee addressed these issues

These matters were addressed as part of the year-end process. The Committee reviewed how these matters were addressed in the Annual Report.

Impact of the cyber incident

In early January 2023, the Group detected unauthorised activity on its network and is continuing to manage the consequences of this cyber security incident. Details of the incident can be found on page 19.

How the Committee addressed these issues

The Committee considered the following including documentation to support key conclusions on the impact of the incident:

- > Engagement with in-house IT team and external advisors to assess the cause, timing and impact of the cyber incident
 - > Management assessment of whether there is any known or suspected fraud associated with the incident
 - > Engagement with in-house legal and legal advisors regarding possible regulatory or customer-related exposures
 - > Update on fraud risk and control environment risk
 - > Update on business risk factors
 - > Management assessment of going concern and long-term viability, including updated view on future trading performance
 - > Steps taken to ensure integrity and completeness of the accounting records, in order to be satisfied that the financial statements give a true and fair value of the assets, liabilities, financial position and profit of the Group
 - > Clear and transparent disclosure of the non-adjusting post balance sheet event in the Annual Report
 - > Assessment of fair, balanced and understandable nature of the Annual Report in light of the cyber incident.
-

Internal control and risk management

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.

The Committee, on behalf of the Board, undertakes an annual review of the effectiveness of the Group's system of internal control and did so again for the year under review. This system is consistent with the FRC's guidance on internal control requirements contained within the Code. The review conducted in April 2023 comprised:

- a review of the relevant Principles and Provisions in the Code
- a review of the Company's governance structures
- a review of the sources of assurance and the Company's three lines of defence model, including policies, annual self-certification process, reports from specialist functions such as the Ethics and Compliance, Tax, Treasury and Legal functions, and internal audit reports
- a review of all material controls, including financial, operational and compliance controls, and risk management systems, including the improvements achieved in 2022 and identification of further areas for improvement
- the Committee and Board receive regular risk management reports and together they ensure that there are adequate internal controls in place and that these are functioning effectively
- the Committee also evaluated whether the cyber incident in January 2023 impacted its conclusions on the control environment for the 2022 year end. Having reviewed the internal controls assessment, the results of the ongoing investigation and subsequent responses to the incident, the Committee assessed that the controls in place during 2022 were adequate and that the incident did not impact the 2022 financial records.

The Directors consider that the Group's system of internal financial control 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 or detect, within a timely period, material errors or irregularities. The system is designed to mitigate and manage risk, rather than eliminate it, and to address key business and financial risks. The majority of internal financial controls are manual; this is driven by a diverse IT landscape and the Group's geographical breadth; as such, there is a heavy reliance on central review controls. The Directors are satisfied that an appropriate amount of time and consideration is dedicated to the review and challenge of results, judgements and estimates – both by the global business units and the Group leadership team.

The main features of the Group's system of 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 Morgan Code and its associated policies and guidelines. The Group policies cover: financial procedures; environmental, health and safety practice; ethics and compliance (for example, anti-bribery and anti-corruption, anti-trust and anti-competitive behaviour and trade compliance); and other areas such as IT and HR. There is a Limits of Authority 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 improve the control environment and management of risk. These include the Group's ethics and compliance programme and the Group internal audit function, which present updates to the Committee at each meeting. In addition, the Committee receives reports from the Presidents and Finance Directors of each of the global business units on their key risks, how these risks are managed and an assessment of the control environment, on an annual basis.

Part of the ethics and compliance programme is the provision of an externally managed, independent whistleblower ('Speak Up') hotline which is made available to workers to raise concerns. Any reports made to the hotline are investigated by senior management, with reports made to the Committee at each meeting. The Committee oversees the progress and outcome of any investigations arising from reports made to the hotline or directly to management, where there is a concern regarding ethical conduct. The reports investigated have varied in their nature and materiality, with certain matters requiring the support of external advisors and giving rise to disciplinary action against employees for breaches of Group policies.

The global 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 consolidated 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.

Report of the Audit Committee continued

Internal control and risk management continued

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 disposals of assets, provide reasonable assurance that transactions are recorded as necessary to allow the preparation of consolidated 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 systems and controls.

Performance monitoring

The Board and the Executive Committee hold regular, scheduled meetings, at which they monitor performance and consider a comparison of forecast and actual results, including cash flows and comparisons against budget and the prior year. Global business unit management teams also meet regularly to review performance. Executive Committee members also visit sites on a regular basis.

Risk management

The Board undertakes a formal assessment of the Group's principal and emerging risks at least twice a year. The identification, assessment and reporting of risks is a continuous process carried out in conjunction with operational management. Appropriate 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 Committee, receives updates on risks, internal controls and future actions from both global business units and Group perspectives. The Executive Committee collectively reviews risk management and internal controls for all principal Group risks. The Group's risk management system, which is described in more detail in the Risk Management section of the Strategic Report on pages 40 to 47, supports the Directors' statements on going concern and viability on pages 55 to 56.

Risk factors

The Group's businesses are affected by a number of factors, many of which are influenced by macro-economic trends beyond Morgan's control; nevertheless, as described above and in the Strategic Report, the identification and mitigation of such risks are regularly reviewed by the Executive Committee and the Board. These risk factors are further discussed in the Risk Management section on pages 40 to 47.

Internal audit

Internal audit

The Group's internal audit function provides objective assurance of the adequacy and effectiveness of risk management and internal control systems. It also may recommend improvements. While the Head of Internal Audit reports administratively to the Chief Financial Officer, appointment to, or removal from, this role requires the consent of the Audit Committee Chair. The Head of Internal Audit is accountable to the Chair of the Audit Committee, attends all regular Committee meetings and meets separately with Committee members without executive management at every meeting.

Each year's internal audit plan is approved by the Audit Committee. The plan is focused on higher-risk areas and any specific areas or processes chosen by the Committee. It is also aligned with any risks identified by the external auditor and Ethics and Compliance team. The Committee is given regular updates on progress, including any material findings, and can refine the plans as needed. The Committee ensures that there are adequate resources in place for the function to carry out the plan. The Committee receives reports showing the ratings and key findings from each audit. The Committee challenges management over the key findings, discusses key themes identified by the internal audits and guides management in identifying areas of focus to continuously improve controls.

Actions arising from internal audit reviews are agreed with management and the Committee monitors progress on any outstanding actions.

In 2022, the Committee reviewed the effectiveness of the function by way of surveys completed by Committee members and key management personnel. This is the approach taken in those years that the review is not externally facilitated. The last externally facilitated review was in 2018, and an external review is planned for 2023. We are satisfied that the quality, experience and expertise of the internal audit function are appropriate for the business and that the function was objective and performed its role effectively. We also monitored management's response to internal audits during the year. We are satisfied that improvements are being implemented promptly in response to the findings, and believe that management supports the effective working of the function.

External auditor

External auditor, including independence and Non-Audit Services Policy

The external auditor, Deloitte 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 Committee that, in its opinion, it is independent. In addition, the Company has a policy on the provision of non-audit services by the external auditor which was revised in 2019 and is in line with the FRC's revised Ethical Standard 2019 which took effect on 15 March 2020:

- 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 Chair of the Audit Committee. Projects in excess of £200,000, must be approved in advance by the Audit Committee, with any such proposal being submitted in writing to the Chief Financial Officer, who would in turn seek approval from 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.

To safeguard the objectivity and independence of the external auditor, the Company ensures that any non-audit services to be provided by the auditor are given prior approval by the Audit Committee where required under the policy.

In the opinion of the Committee, the auditor's objectivity and independence were safeguarded despite the provision of a limited number of non-audit services by Deloitte LLP during 2022.

In 2022, the proportion of the auditor's fees for non-audit work relative to the audit fee was 0.0% (or £41,000), (2021: 0.0%).

Auditor effectiveness

The Committee discussed the quality of the audit during the year and considered the performance of the external auditor as a separate agenda item at the meeting in April 2023. The Committee conducted a full review following the 2022 year end to gather feedback and look for continuous improvement opportunities. The Committee considered all aspects of the auditor's performance, based on a review of the effectiveness of the external audit process, which was conducted through a questionnaire taking into consideration relevant professional and regulatory requirements. The questionnaire was completed by each GBU finance director and nine Group functional teams. In addition to the questionnaire, the following external auditor areas were reviewed:

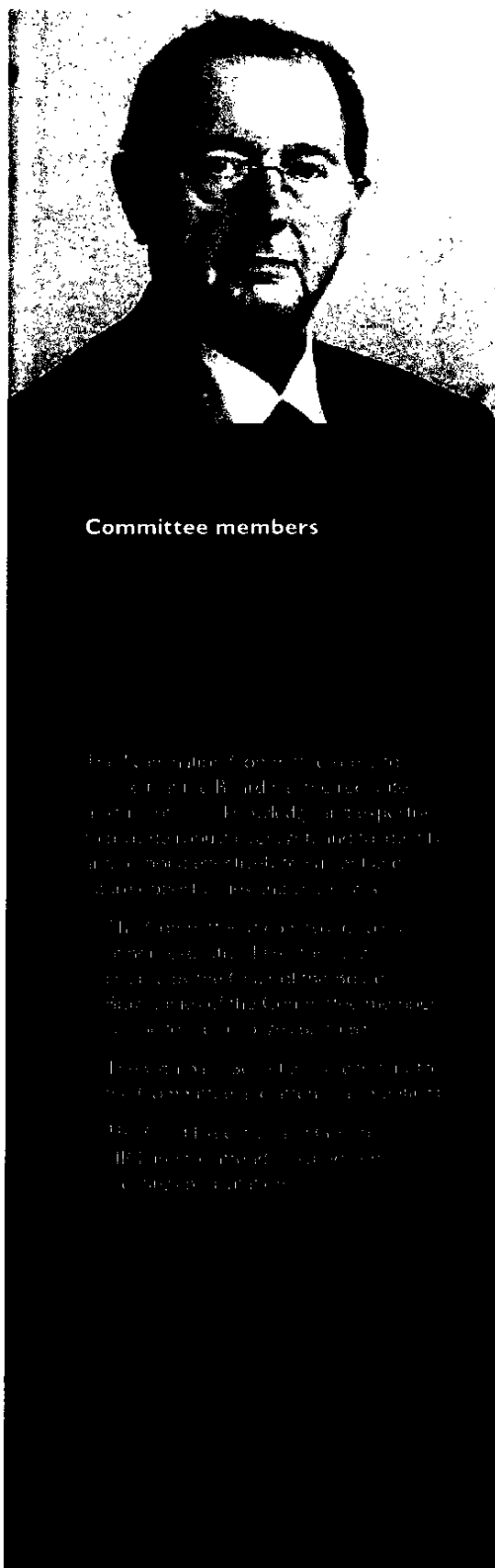
- independence confirmation
- audit methodology, use of component auditors and audit scope and coverage
- assessment of materiality and areas of audit focus, consideration of appropriate audit procedures, professional scepticism, appropriate management challenge, clarity and candour in reporting
- the FRC's AQR findings for Deloitte for the 2021-22 cycle of reviews and Deloitte's proposed actions to address these findings as a firm.

The Committee concluded that the external audit process in respect of the financial statements for the year ended 31 December 2022 was effective. The Committee confirmed Deloitte's independence before recommending its reappointment for approval by shareholders at the Annual General Meeting (AGM) on 29 June 2023.

External audit rotation

Deloitte LLP was appointed by shareholders as the Group's statutory auditor in 2020 following a formal tender process. For 2022, Deloitte continued to provide external audit services to the Group. Jane Makrakis was the lead partner for Deloitte on the audit. The Audit Committee considers annually the need to tender the audit for audit quality or independence reasons. There are no contractual obligations in place that restrict the Group's choice of statutory auditor. The external audit contract will be put out to tender at least every 10 years. The Committee considers that it would be appropriate to conduct an external audit tender by no later than 2030. The Company has complied with the provisions of the Competition and Markets Authority's Order on statutory audit services.

Report of the Nomination Committee



Committee members

The Nomination Committee consists of five members, three of whom are independent non-executive Directors, and two who are executive Directors. The independent non-executive Directors have relevant experience, knowledge and expertise in corporate governance, diversity and talent, and a proven ability to lead, challenge and advise the executive Directors and the Board.

The Chair of the Committee, Douglas Caster, is an independent non-executive Director. The Chair of the Committee is responsible for leading the work of the Committee, and for ensuring that the Committee has the resources it needs to discharge its responsibilities effectively.

The independent non-executive Directors have relevant experience, knowledge and expertise in corporate governance, diversity and talent, and a proven ability to lead, challenge and advise the executive Directors and the Board.

The executive Directors have relevant experience, knowledge and expertise in corporate governance, diversity and talent, and a proven ability to lead, challenge and advise the independent non-executive Directors and the Board.

Dear shareholder

On behalf of the Nomination Committee, I present our report for 2022. The Committee met three times during 2022 and members' attendance is set out in the table on page 64.

The Committee performs a vital role in reviewing the composition and balance of skills and experience on the Board, enabling it to lead the process for appointments to the Board, keep under review the leadership needs of the Group, and ensure plans are in place for orderly succession to Board and senior management positions. During 2022, led by Laurence Mulliez as Senior Independent Director, the Committee was primarily concerned with identifying my successor as Chair of the Board. The Committee also oversaw the appointment of Richard Armitage as Chief Financial Officer, reviewed Board succession and assessed whether the objectives of the Board's Diversity and Inclusion Policy, including how it supports Morgan's strategy, had been implemented and what progress has been achieved. During the year, the Board reviewed succession planning and talent strategy for the Executive Committee and its direct reports, with a particular lens on our aim to foster diversity within the leadership population and increase the female leadership population to 40% by 2030.

The Committee remains conscious that to execute on Morgan's strategic priorities of Big positive difference, Delight the customer and Innovate to grow, building our talent pool with individuals whose skill sets and thinking can drive Morgan's strategy and shape our culture is critical to the Group's long-term success.

The Committee's performance was reviewed as part of the internal evaluation aimed at identifying areas for improvement. I am pleased to report that the Committee is continuing to work well and is fully discharging its responsibilities, whilst contributing effectively to the Group's overall governance framework.

Douglas Caster CBE FIET
Committee Chair

Key responsibilities

The Nomination Committee supports the Board in ensuring that the Board and its Committees are appropriately staffed and operate effectively. The Committee identifies qualified individuals to join the Board, recommends any changes to the Board and Committee composition and monitors an annual process to assess Board effectiveness.

This involves:

- > overseeing and facilitating annual reviews of the Chair, the Board, its Committees and individual Directors, including externally facilitated reviews
- > evaluating and overseeing the balance of skills, knowledge and experience on the Board and its Committees
- > monitoring the independence of Directors
- > overseeing Board succession plans and leading the process to identify suitable candidates to fill vacancies, nominating such candidates for approval by the Board and ensuring that appointments are made on merit and against objective criteria
- > overseeing the induction of new Directors
- > overseeing succession plans for the executive Directors and senior management.

The terms of reference of the Committee are available on the Company's website, morganadvancedmaterials.com.

Key activities in 2022

Board and Committee composition	<ul style="list-style-type: none"> ➤ Monitored the global search carried out by Korn Ferry for a Chair designate and independent non-executive Director led by the Senior Independent Director ➤ Interviewed and considered potential Board candidates ➤ Reviewed the independence of all Directors, making recommendations to the Board ➤ Reviewed the structure, size and composition of the Board and its Committees, ensuring that they remain appropriate ➤ Reviewed and updated the Board's Diversity and Inclusion Policy, and assessed progress against its objectives
Succession planning	<ul style="list-style-type: none"> ➤ Reviewed and endorsed succession plans for the Board and its Committees ➤ Reviewed updated succession plans for the Chief Executive Officer ➤ Continued to provide input to the succession plans for the Executive Committee (excluding the Chief Executive Officer) and the Group's diversity and inclusion programme ➤ Reviewed and endorsed updates to the Board's skills matrix
Board effectiveness reviews	<ul style="list-style-type: none"> ➤ Oversaw the implementation of recommendations arising from the 2021 external evaluation of the Board and Committees' performance ➤ Carried out the 2022 internal evaluation of the Board and Committees' performance
Corporate governance	<ul style="list-style-type: none"> ➤ Monitored the fulfilment of the new requirements, principles and expectations of the Code ➤ Reviewed Directors' declarations on potential conflicts of interest ➤ Reviewed requests by Directors to undertake additional appointments ➤ Considered whether each Director continued to be able to allocate sufficient time to discharge their responsibilities effectively ➤ Considered the annual election or re-election of Directors at the 2023 Annual General Meeting (AGM) ➤ Reviewed the Committee's terms of reference

Diversity and inclusion

The Board's Diversity and Inclusion Policy reflects the Board's belief in the benefits of diversity and that more diverse companies attract and maintain the best talent and achieve stronger overall performance.

The Board considers a broad definition of diversity when setting policies and appointing Directors, including gender, disability, nationality, educational and professional experience, personality type, culture and perspective.

Statement on compliance against regulatory targets on gender and ethnicity

The Committee has worked hard to ensure that the Board is suitably diverse according to these criteria. The Board reviews its effectiveness in meeting diversity goals each year as part of the annual Board evaluation process. The Board confirms that as at 31 December 2022 (being the reference date selected by the Board for the purposes of this disclosure), the Company complied with the regulatory targets set out in LR 9.8.6 R(9)(a) as if they

applied to the Company's financial year under review. Accordingly, there was 43% female representation on the Board, one of whom is the Senior Independent Director, and the Board currently has one Director of Southeast Asian origin. Both the Audit Committee Chair and the Remuneration Committee Chair are female. Morgan's intention is to at least maintain that level of diversity, in order that the Board's composition can more closely reflect the Group's workforce and society more generally. It is however acknowledged that in periods of Board change, there may be times when this balance is not maintained. The percentage of women on the Group's Executive Committee is 30%. At 31 December 2022, 29% (2021: 27% and 2020: 25%) of senior management, defined in accordance with the Code as the members of the Executive Committee including the Company Secretary and their direct reports, were female. The Committee takes diversity into account in broader discussions on succession planning and talent development and supports management in its wider commitment to promoting diversity. The Company submitted data to both the FTSE Women Leaders Review and the Parker Review during 2022.

Board and Executive Committee diversity as at 31 December 2022

	Number of Board members	Percentage of the Board	Number of senior positions on the Board	Number in executive management	Percentage in executive management
Men	4	57	3	7	70
Women	3	43	1	3	30
White British or other White (incl minority-White groups)	6	90	4	9	90
Mixed Multiple Ethnic Groups	–	–	–	–	–
Asian/Asian British	1	10	–	1	10
Black/African/Caribbean/Black British	–	–	–	–	–
Other ethnic group, including Arab	–	–	–	–	–
Not specified/Prefer not to say	–	–	–	–	–

This disclosure is based on data collected from the individuals on joining Morgan

Report of the Nomination Committee continued

Diversity policy

The Board has agreed objectives for achieving gender, ethnic and cultural diversity on the Board and its Committees which have informed the appointments made during the year. With the refreshment of the Board into future years, the policy will inform and steer the Committee in identifying candidates and set the tone for the wider Group's diversity aspirations, in particular in the context of developing its leadership population.

To promote diversity and inclusion the Board will:

- consider all aspects of diversity when reviewing the composition and effectiveness of the Board and its Committees
- only engage with executive search firms which are accredited under the Enhanced Code of Conduct for Executive Search Firms, or which have a proven track record in sourcing diverse candidates, when seeking to make new appointments
- ensure that candidate lists include individuals from a broad and diverse range of backgrounds and that all candidates with the requisite skills and capability are considered, including those with less traditional track records than the corporate mainstream
- agree new Board appointments based on merit against the objective criteria set, taking account of the unique benefits each candidate can bring
- review senior executive succession planning annually and monitor the development of a diverse pipeline of future senior leaders, reflecting the composition of Morgan's workforce
- set the tone and provide visible support for the Group's diversity and inclusion objectives, including the fostering of an inclusive culture which allows individuals to bring their whole selves to work, role-modelling and promoting inclusive leadership
- review and challenge the goals and progress of executive management in improving inclusion and diversity.

Succession

An integral part of the work of the Nomination Committee is to establish and maintain a stable leadership framework and to proactively manage changes and their impacts on the future leadership needs of the Company, both in terms of executive and non-executive leadership. Ensuring the correct leaders are in place enables the organisation to compete effectively in the marketplace and therefore to meet its various obligations to its stakeholders. The Committee has managed succession programmes for both the Board and senior management which have ensured that the necessary skills, expertise and experience are present in the leadership of the organisation.

Board succession

The Committee regularly reviews the skills and expertise that are present on the Board and compares these to the expertise that it believes is required given the strategy, business priorities and culture of the organisation. The Board's succession plan is reviewed formally at least once per year and addresses Board size, Committee structure and composition, skills on the Board, Board and Committee members' tenure, independence of Directors, diversity (including gender), Board roles, Board policies and individual succession plans for all Board and Committee positions.

During 2022, the Committee discussed succession planning at each of its meetings. *The Committee considered both the Board skills matrix and the Board's Diversity and Inclusion Policy in the context of succession planning as tools to help identify potential composition needs for the future, and to ensure that plans are proactive and not just reactive in nature.* There were no non-executive Director retirements or appointments in 2022. We continue to manage a phased succession programme for non-executive Directors and are pleased with the balance of length of tenure, as well as of diversity, background and perspective of our current non-executive Directors. The process for the Chair's succession is set out in the case study on page 89.

Senior management succession

The Committee received regular updates regarding senior management succession planning. *These updates included the planning and processes involved with the appointment of a new Chief Information Officer and President for Thermal Products.*

The Committee is responsible for succession planning for the Executive Committee which allows for ongoing monitoring of the impact of the diversity and inclusion strategy on appointments that are made and their progress within the Company, including at the level of those who report to the Executive Committee, to develop a pipeline of female and diverse talent that will serve to widen the pool of candidates for Board and leadership positions in the future. The Nomination Committee will continue to work with the Chief Executive Officer and Group HR Director on senior management succession and development in 2023.



Chair succession

On 18 January 2023, the Board announced that it had selected Ian Marchant to succeed Douglas Caster as Morgan's Chair. Ian joined the Board with effect from 1 February 2023 and will be appointed to the role of Chair at the conclusion of Morgan's AGM on 29 June 2023, subject to shareholder approval. Douglas will step down from the Board at the same time, having served on the Board for nine years.

Ian is a highly strategic and successful leader with more than 35 years of wide-ranging experience at major businesses, bringing a strong track record of value creation and listed board experience. Further information on Ian's skills and contribution can be found on page 62. The Board is delighted to have appointed such an outstanding individual and is confident Ian will lead the Morgan Board with distinction.

Define	<p>In preparedness for the ninth anniversary of Douglas's appointment to the Board in February 2023, the Nomination Committee, under the leadership of the Senior Independent Director, commenced the search for his successor in 2022. At no point was the incumbent Chairman involved in the process of selecting his successor.</p> <p>The executive search agency, Korn Ferry, was engaged to conduct the external search. Korn Ferry has no other relationship with the Company or the individual Directors and is independent. A candidate specification was prepared and agreed with the Committee. This included proven experience of leading a business of significant scale and complexity, knowledge and experience of the engineering and industrial sector, international experience, a commitment to the highest ESG standards, and a proven ability to lead a board and act as a mentor to the executive team. The Committee requested a diverse long list of candidates, in respect of gender, ethnicity and background, be produced.</p>
Review	The executive search agency, Korn Ferry, identified potential candidates to create a longlist and presented this to the Committee for consideration.
Identify	The Board agreed the most suitable potential candidates from the long list which included diverse candidates and instructed the executive search agency to approach them for interview and assessment.
Assessment	The shortlisted candidates were invited for initial assessment and interview, initially by the executive search agency and then by the full Board.
Appointment	The successful candidate was recommended for appointment to the Board.
Induction	<p>The Group Company Secretary has arranged a comprehensive induction programme for Ian. It includes meetings with each Board member, the members of the Executive Committee and the senior leadership team. The overall programme is designed to ensure that Ian gains a thorough understanding of our:</p> <ol style="list-style-type: none"> 1. purpose, strategy and values 2. culture and people, including visits to our major sites, with opportunities to meet with the local management teams and workforce 3. business and operations, through a series of tailored teach-ins, training programmes and site visits 4. ESG agenda and what we are targeting to build our impeccable credentials 5. investors, including a detailed engagement plan with institutional and retail investors 6. key advisors, including brokers, auditors and corporate advisers 7. governance and regulatory framework and our capital and financing structure.



During the year, the Committee met four times. Its activities included determination of current incentive outcomes, remuneration packages for the Company's Chair and executive Directors (including the new Chief Financial Officer, and his retiring predecessor), and a review of the implementation of the Group's Remuneration Policy. Further details regarding the activities of the Committee can be found in the Remuneration governance section at the end of this Report on page 115.

Implementation of Policy in 2023

In keeping with our usual approach, salary increases have been determined by the Committee in the context of the continued performance of the Group in 2022, labour market conditions, and the average salary increases awarded to the wider workforce. The process for reviewing executive Director salaries takes into account individual and Group performance, demonstration of the defined leadership behaviours and salary position relative to the relevant market, which is consistent with the approach taken for the entire professional population. However, the Committee also factored into its decision-making this year the prevailing inflationary environment and its asymmetric cost-of-living impact on different organisational levels of the Group, and determined to award salary increases of 4% for both the CEO and CFO (compared to the average increase for the wider UK workforce of 4.5%). The Committee also approved a 3% increase to the Chairman's fee (which Mr Caster has voluntarily waived), and the Chairman and executive Directors approved a similar 3% increase to the non-executive Directors' base fee for 2023.

The Committee also reviewed the structure of the annual bonus and LTIP plans to ensure that the framework remains appropriately aligned with our strategic aims and culture, motivates and rewards management for delivering sustainable performance, and supports retention.

For the 2023 annual bonus, the cash generation metric will be replaced with a single measure of year-end working capital in order to drive the recovery of our working capital position following the recent cyber security incident. No other changes are proposed to the performance linkage of the annual bonus for 2023 as measures remain aligned to Morgan's key objectives, including ESG (environmental, social and governance) measures being covered in the executive Directors' personal objectives and therefore reflected in the personal performance element of the bonus. For the LTIP, it is proposed to maintain ESG targets at 5% to 15% carbon reduction over the three-year performance period, reflecting our stated longer-term ambition to reduce carbon emissions by 50% by 2030 (from a 2015 baseline). The EPS performance range for the 2023 LTIP will be set at 4%-11% per annum over the three-year performance period, which is in line with the performance ranges set pre-pandemic (these having been temporarily increased during the pandemic to take into account the reduced base level resulting from the impact of the pandemic). The Committee considers this to be appropriately challenging in the context of the Group's strategic plan, external market factors and broker forecasts. No changes are proposed to the TSR benchmarks and relative TSR performance range (median-upper quartile). It is proposed to maintain the ROIC* range for that element of the executive Directors' 2023 LTIP at 17%-20%, to reflect our latest expectations for performance over the three-year performance period. For the annual bonus, the EBITA performance range has been set at -1.6% to 13.0% of target, and the year-end working capital performance range is set at $\pm 6.0\%$ of target. These reflect the continued economic volatility externally, and potential residual impact of the recent cyber incident, and the potential impact on performance outcomes. Annual bonus targets are considered to be commercially sensitive at this time but will ordinarily be disclosed in next year's Remuneration Report.

This Report is consistent with the current reporting regulations for executive remuneration and, as in prior years, includes a Remuneration at a glance section summarising 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.

Helen Bunch
Committee Chair

Remuneration at a glance

Components of remuneration

$$\begin{aligned}
 &\bullet \text{ Salary} + \bullet \text{ Pension and Benefits} = \bullet \text{ Fixed total} \\
 &\bullet \text{ Annual bonus} + \bullet \text{ LTIP} = \bullet \text{ Variable total} \\
 &\bullet \text{ Fixed total} + \bullet \text{ Variable total} = \text{Total remuneration}
 \end{aligned}$$

Key features of how our executive remuneration policy will be implemented in 2023

Fixed components

Base salary		Policy
Pete Raby (CEO)	£620,000	Executive Directors' salaries are generally reviewed each January, with reference to individual and Group performance, experience and salary levels at companies of similar sector, size and complexity.
Richard Armitage (CFO)	£442,000	

Pension and other benefits

Pension		Benefits (estimated values)	Policy
Pete Raby (CEO)	8% of salary	Pete Raby (CEO) £13,847	Policy change approved at the 2022 AGM aligns pension contributions (and/or cash in lieu thereof) for executive Directors with the level of contributions available to the UK workforce from 31 December 2022 onwards. Other benefits can include company car/car allowance, health insurance and, where appropriate, relocation allowances and other expenses.
Richard Armitage (CFO)	8% of salary	Richard Armitage (CFO) £12,960	
			Implementation For 2023, executive Director pension contributions are now fully aligned with those of the wider workforce (8% based on UK population). Richard Armitage's pension allowance was set at this level on appointment, and for Pete Raby was reduced to this level in line with our stated commitment to alignment from 31 December 2022.

Variable components, annual bonuses

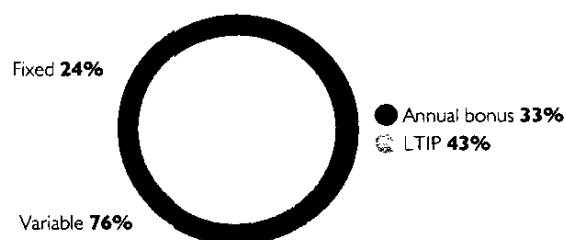
Maximum opportunities for 2023 (no change)		Performance measures weighting	Policy
Pete Raby (CEO)	150% of salary	Operating profit* 40%	Maximum award opportunity: 150% of base salary Performance measures are set by the Committee at the start of the year and are weighted to reflect a balance of financial and strategic objectives. 67% of 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.
Richard Armitage (CFO)	150% of salary	Year-end working capital 40%	
		Strategic personal objectives 20%	

LTIP

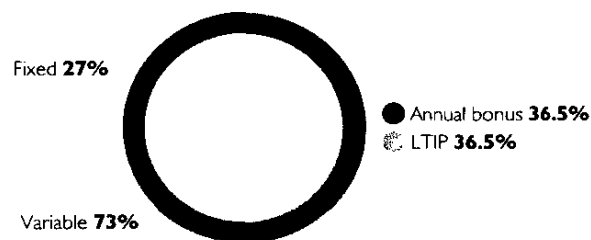
Maximum opportunities for 2023		Performance measures weighting	Policy
Pete Raby (CEO)	200% of salary	TSR vs. FTSE All-Share Industrials Index 15%	Maximum award opportunity: 200% of base salary. The award levels and performance conditions on which vesting depend are reviewed prior to the start of each award cycle to ensure they remain appropriate. Vested shares are subject to a post-vesting holding period of two years. The vesting of awards is usually subject to continued employment and to the Group's performance over a three-year performance period. 25% of an award vests for achievement of the threshold level of performance.
Richard Armitage (CFO)	150% of salary	TSR vs. peer group 15%	
		EPS growth 27.5%	
		Group ROIC* 27.5%	
		ESG (carbon reduction) 15%	

Pay at risk

Pete Raby (CEO)

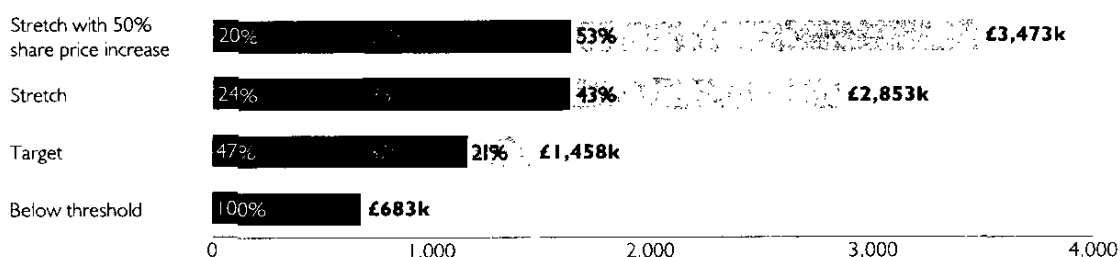


Richard Armitage (CFO)

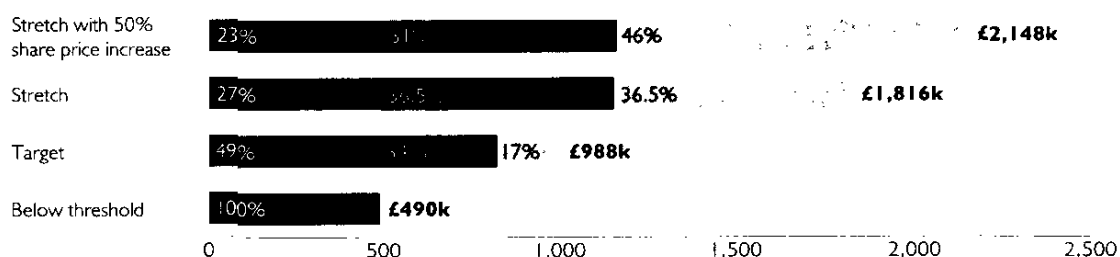


Pay scenarios

Pete Raby (CEO)



Richard Armitage (CFO)



● Variable ● Fixed total (base salary, pension and benefits) ● Annual bonus ● LTIP

Shareholding requirements

Pete Raby (CEO) 200% of salary
(current shareholding 270.1%)

Richard Armitage (CFO) 200% of salary
(current shareholding 29.5%)

Remuneration report continued

This Report covers the period 1 January 2022 to 31 December 2022 and provides details of how the Remuneration Committee has operated and implemented the Remuneration Policy, approved by shareholders at the 2022 AGM, during the year under review. The proposed implementation of this Policy for the 2023 financial year is summarised on pages 91 to 93.

I. Policy report

Key principles of the Remuneration Policy

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

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

The Remuneration Committee will keep the Remuneration Policy under periodic review to ensure it remains aligned with the Group's strategy, reinforces the Group's culture, and is 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 views and guidance of institutional investors and their representative bodies.

Summary of Morgan Advanced Materials plc's Remuneration Policy

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 Company's AGM on 5 May 2022, and which is effective for a period of up to three years from that date. The only updates to the Policy report published in the 2021 Annual Report are: (i) page numbers; (ii) the section on performance measure selection (which has been updated to relate to 2023 incentive cycles); and (iii) the pay scenario charts (which have been updated to reflect the implementation of Policy for the 2023 financial year).

The Committee has developed the Remuneration Policy to be consistent with the six factors outlined in Provision 40 of the Code, as set out below:

Clarity: Our Policy is clear, and disclosures on our decision-making (in relation to policy and its implementation) are transparent. The Committee also engages regularly with shareholders and employees to facilitate a greater understanding on a range of subjects, including remuneration.

Simplicity: The Policy and the Committee's approach to implementation is simple and well understood. The performance measures used in the incentive plans are well aligned to the Group's strategy.

Risk: The Committee has ensured that remuneration arrangements do not encourage or reward excessive risk taking by setting targets to be stretching and achievable, with discretion to adjust formulaic bonus and LTIP outcomes.

Predictability: The range of outcomes under our Policy are quantifiable, clearly linked to defined performance outcomes, and capped.

Proportionality: The link of the performance measures to strategy and the setting of targets ensures outcomes are proportionate to performance, and importantly do not reward poor performance.

Culture: The Policy is consistent with the Group's culture, driving behaviours that promote the long-term and sustainable success of the Group for the benefit of all stakeholders.

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.	<p>Base salaries are generally reviewed each January, with reference to an individual's performance (and that of the Group as a whole), their experience, and the range of salary increases applying across the Group.</p> <p>The Committee also considers salary levels at companies of similar sector, size and complexity when determining increases.</p>	<p>Our policy is to pay salaries that are broadly market-aligned, with increases 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.</p> <p>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.</p>	<p>An executive Director's performance (and that of the Group as a whole) and also their demonstration of the defined leadership behaviours, are taken into account when making decisions in relation to base salary.</p>
Pension Provides post-retirement benefits for participants in a cost-efficient manner.	<p>Defined contribution scheme (and/or a cash allowance in lieu thereof).</p>	<p>For current executive Directors from 31 December 2022 onwards, and for new executive Directors on appointment, contributions (or cash in lieu thereof) will be aligned with the level of contribution available to the UK workforce at that time.</p>	<p>Not applicable.</p>
Benefits Designed to be competitive in the market in which the individual is employed.	<p>Can include company car/car allowance, health insurance and, where appropriate, relocation allowances and other expenses.</p>	<p>Benefits values vary by role and are reviewed periodically relative to the market.</p> <p>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.</p> <p>The Committee retains the discretion to approve a higher cost in exceptional circumstances (e.g. relocation expenses, expatriate allowances etc.) or in circumstances where factors outside the Group's control have changed materially (e.g. market increases in insurance costs). Benefits in respect of the year under review are disclosed in the Annual Report on Remuneration.</p>	<p>Not applicable.</p>

Remuneration report continued

Purpose and link to strategy	Operation	Opportunity	Performance metrics
Variable pay			
Annual bonus	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.	Up to 150% of salary.	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.
Provides a direct link between annual performance and reward.	At the end of the year, the Remuneration Committee determines the extent to which these have been achieved.	The payout for threshold performance may vary year on year but will not exceed 25% of the maximum opportunity.	The Committee retains discretion to adjust the bonus outcome if it considers that the payout is inconsistent with the Company's underlying performance when taking into account any factors it considers relevant.
Incentivises the achievement of key specific goals over the short term that are also aligned to the long-term business strategy.	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.		Further details are set out in the Annual Report on Remuneration on pages 102 to 116.
Deferred bonus supports retention and provides additional alignment with the interests of shareholders.	Cash and deferred share bonuses awarded for performance will be subject to malus and clawback until the end of the deferral period. Further details of our Malus and Clawback Policy are set out at the end of this table.		
	Dividends may accrue over the deferral period on deferred shares that vest. Any dividends that accrue will be paid in shares at the end of the vesting period.		

Purpose and link to strategy

Long-Term Incentive Plan (LTIP)

Aligns the interests of executives and shareholders with sustained long-term value creation.

Incentivises participants to manage the business for the long term and deliver the Company's strategy.

Operation

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. Vested shares are subject to a post-vesting holding period of two years.

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.

Dividends may accrue on vested shares during the holding period.

Opportunity

Under the Policy, the LTIP provides for a conditional award of shares up to an annual limit of 200% of salary.

25% of an award vests for achievement of the threshold level of performance.

Performance metrics

The vesting of awards is usually subject to continued employment and the Group's performance over a three-year performance period. Subject to shareholder approval, this will be based on a combination of TSR, EPS, ROIC* and ESG 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.

The Committee also retains discretion to adjust the vesting outcome if it considers that the level of vesting is inconsistent with the Company's underlying performance when taking into account any factors it considers relevant.

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 102 to 116.

None.

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.

Malus and Clawback Policy

Malus and clawback will apply to the annual bonus and LTIP (as set out above) in cases of error in determining performance, corporate failure, 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, including (but not limited to) significant breaches of EHS codes, fraud, or other events which may cause serious reputational damage. Cash bonuses will be subject to clawback, with deferred shares

subject to malus over the deferral period. LTIP awards are subject to malus and clawback over the vesting period 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 Remuneration Policy detailed in this Report (i.e. before 5 May 2022), 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 of the individual becoming a Director of the Company. Details of these awards 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' remuneration. Annual salary reviews across the Group take into account individual and business performance, demonstration of the defined leadership behaviours, experience, local pay and market conditions, and salary levels for similar roles in comparable companies.

Remuneration report continued

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, and terminations. Any adjustments in light of corporate events will be made on a neutral basis, meaning that they will 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 will be detailed in the relevant year's 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 2023 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 83 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 15 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.

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. For the 2023 LTIP cycle, ROIC* will continue to be calculated as follows:

$$\text{Group headline operating profit*} \\ (\text{pre-specific adjusting items}) \\ \div \text{12-month average (third-party working} \\ \text{capital} + \text{total fixed assets} + \text{total} \\ \text{intangible fixed assets)}$$

The ESG measure is based on the percentage reduction in CO₂ emissions, with targets aligned to Morgan's overall strategic goals.

Share ownership guidelines

In order to encourage alignment with shareholders, executive Directors are required to build and maintain an individual shareholding in the Company equivalent to at least 200% of base salary. The required level of shareholding is expected to be achieved within five years of an executive Director's appointment. Executive Directors' shareholdings are reviewed annually by the Committee to ensure progress is being made towards achievement of the guideline level of shareholding. If it becomes apparent to the Committee that the guideline is unlikely to be met within the timeframe, the Committee will discuss with the Director a plan to ensure that the guideline is met over an acceptable timeframe.

From 2019, executive Directors have also been subject to a post-employment shareholding requirement. Executive Directors are required to hold shares at a level equal to the lower of the share ownership requirement or the actual shareholding on departure for a period of one year from departure date. Morgan's relatively short business cycle ensures the Board has good visibility within a 12-month period of the quality of decision-making and, in addition, unvested awards for good leavers subsist to the normal vesting date (albeit pro-rated for time), ensuring incentive outcomes remain linked to Morgan's performance beyond the date of cessation. The Committee retains the discretion to modify the post-employment shareholding requirement in certain, extraordinary circumstances; for example, on a change of control during the period or if a conflict of interest arises with an executive Director's next appointment.

Current executive Director shareholdings are set out in the Annual Report on Remuneration on page 111.

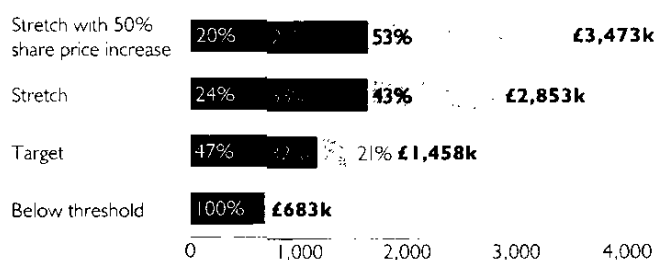
External appointments

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 in the Annual Report on Remuneration on page 107.

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 four different performance scenarios: 'Below threshold', 'Target', 'Stretch' and 'Stretch with 50% share price appreciation'. These have been updated to illustrate the potential opportunity under the 2023 packages approved for executive Directors.

Pete Raby (CEO)



Richard Armitage (CFO)



● Fixed total (base salary, pension and benefits) ● Annual bonus ● LTIP

The potential reward opportunities illustrated above are within the 2022 Policy applied to the annual base salary in effect at 1 January 2023. For the annual bonus, the amounts illustrated are those potentially receivable in respect of performance for 2023 (before mandatory deferral into shares). The LTIP is based on the face value of awards to be granted in 2023 (200% of salary for the CEO and 150% for the CFO). 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 change in the underlying value of the shares once an award is made, apart from in the 'Stretch with 50% share price appreciation' scenario. The following assumptions have been made in compiling the above charts:

Scenario	Annual bonus	LTIP	Fixed pay
Stretch with 50% share price appreciation	Maximum annual bonus.	Performance warrants full vesting (100% of the award). LTIP award value has additionally been uplifted by 50%.	
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:

Executive Director	Position	Date of appointment	Date of service agreement	Notice period	
				From employer	From employee
Pete Raby	CEO	1 August 2015	30 January 2015	12 months	6 months
Peter Turner	Former CFO (stepped down from the Board 30.05.22)	11 April 2016	30 March 2016	12 months	6 months
Richard Armitage	CFO	30 May 2022	16 September 2021	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.

Remuneration report continued

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 or the settling of legal claims or potential legal claims by the departing executive Director, including any other amounts reasonably owing to the executive Director, for example, to meet 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 any payment in lieu of notice. 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, LTIP and deferred bonus plan 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 (i.e. not pro-rated for time).	At the normal vesting date, unless the Committee decides that awards should vest earlier (e.g. in the event of death).
Change of control	Awards will normally vest in full (i.e. 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 (e.g. 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 plan 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.

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 available to the wider workforce. If the executive Director is ineligible to join the standard defined contribution scheme, the Company may grant a cash allowance of equivalent value.	In line with Policy limits.
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.	Up to HMRC limits.
Annual bonus	As described in the Policy table and typically pro-rated for the proportion of the year served; performance measures may include strategic and operational objectives tailored to the individual in the financial year of joining.	Up to 150% of salary.
LTIP	New appointees may be granted awards under the LTIP on similar terms to other executives.	Up to 200% 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 via 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 ¹	Annual fees paid to the Chairman and non-executive Directors are reviewed periodically. An additional fee is payable to the Senior Independent Director, and also in respect of chairing a Board Committee.	Annual fees are applied in line with the outcome of each periodic review.	None.
To attract and retain high-calibre non-executive Directors.	Currently paid 100% in cash.		

1. The maximum aggregate annual fee for all non-executive Directors (including the Chairman) as provided in the Company's Articles of Association is £750,000.

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 re-election
Douglas Caster	Chairman	14 February 2014	15 January 2014 ¹	5 May 2022
Helen Bunch	Non-executive Director	24 February 2016	19 January 2016	5 May 2022
Laurence Mulliez	Senior Independent Director	6 May 2016	4 April 2016	5 May 2022
Jane Aikman	Non-executive Director	31 July 2017	27 April 2017	5 May 2022
Clement Woon	Non-executive Director	10 May 2019	7 May 2019	5 May 2022

1. Douglas Caster received a subsequent letter of appointment on 18 December 2018.

Remuneration report continued

Consideration of stakeholder views

The Executive Management team 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. When making decisions on executive remuneration, the Committee considers the pay and employment conditions across the Group. Engagement with employees on remuneration is currently achieved through non-executive Director employee listening sessions where employees have the opportunity to raise issues. The non-executive Directors undertook several employee listening sessions in 2022, to ensure that the Board understands the views of employees and the impact its decisions have on them. They engaged with the employees on a broad range of topics, including reward and benefits. Details of these employee listening sessions can be found on pages 72 to 73. In addition, we undertake an annual engagement survey, 'Your Voice', in order to better understand the views of a wider range of employees. The engagement survey includes a range of specific questions on the Company's pay practices and presents an opportunity for the workforce to share feedback and ask its own questions about employee or executive reward. Through the feedback from the engagement survey, supplemented with the learnings from the employee listening sessions, the voice of Morgan employees is heard at Remuneration Committee meetings. This enables the Remuneration Committee to take into account the views of employees when considering executive remuneration and the pay and employment conditions throughout the wider workforce. Laurence Mulliez, our Senior Independent Director and a member of the Remuneration Committee, attended a listening session in March 2023 with employees on the Ignite and Catalyst leadership programmes specifically focused on reward and executive remuneration. It was a useful session; the employees were reassured to hear about the Board's rigour around fairness for the consideration of reward for the Executive Directors in line with that of the wider workforce. In the UK, engagement is further facilitated by the Sharesave programme, which enables UK employees to become shareholders and provides them with the same voting rights as other shareholders in relation to resolutions for approval at the AGM (and which include executive remuneration matters). Prior to the annual salary review, the Committee is provided with pay increase data that individual business units consider when deciding local pay awards for their specific businesses and countries. The Committee is also kept fully informed of remuneration policy and implementation decisions affecting the wider workforce. This important context forms part of the Committee's considerations for determining executive Director remuneration. See also the Stakeholders section on pages 24 to 27.

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 and implementing Morgan's 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 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 and will be implemented in 2023.

Single total figure of remuneration for executive Directors (audited)

The table below sets out a single figure for the total remuneration received by each executive Director for the year ended 31 December 2022 and the prior year.

	Pete Raby		Richard Armitage ¹		Peter Turner ²	
	2022	2021	2022	2021	2022	2021
1. Salary	£596,000	£581,175	£249,551	n/a	£176,421	£426,160
2. Pension	£104,000	£104,000	£19,964	n/a	£33,168	£80,120
3. Benefits	£13,637	£13,644	£8,378	n/a	£5,188	£12,242
Fixed pay subtotal	£713,637	£698,819	£277,893	n/a	£214,777	£518,522
4. Bonus	£246,708	£845,610	£102,623	n/a	£78,320	£620,063
5. LTIP	£696,494	£497,238	n/a	n/a	£427,683	£372,792
6. Other	£1,800	–	£444,800	n/a	–	–
Variable pay subtotal	£945,002	£1,342,848	£547,423	n/a	£506,003	£992,855
Total	£1,658,639	£2,041,667	£825,316	n/a	£720,780	£1,511,377

¹ Richard Armitage joined the Board on 30 May 2022. His remuneration for 2022 reflects the period 30 May to 31 December 2022.

² Peter Turner stepped down from the Board on 30 May 2022 and retired from the Group on 30 June 2022. His remuneration for 2022 in the table above reflects the period 1 January to 30 May 2022, with the exception of LTIP which reflects the full value of the pro-rated 2020 LTIP award that is expected to vest during 2023.

The figures have been calculated as follows:

1. Base salary: amount earned for the year.
2. Pension: the figure is a cash allowance in lieu of pension.
3. Benefits: the taxable value of benefits received in the year. Includes private medical insurance and a company car (or car allowance). Pete Raby's 2022 private medical insurance has been trued up from the number indicated in the Remuneration at a glance section in last year's annual report, based on October policy renewal.

4. Bonus: the total bonus earned on performance during the year (before any mandatory deferral into shares). Richard Armitage and Peter Turner were eligible for a pro-rata bonus in relation to the 2022 financial year. Peter Turner's payment will be made wholly in cash as disclosed in last year's annual report.
5. LTIP: the estimated value on 31 December 2022 of 2020 LTIP shares vesting in 2023, subject to performance over the three-year period ended 31 December 2022. Richard Armitage, who joined Morgan in 2022, did not participate in this LTIP cycle. Figures are based on the average share price for the three months to 31 December 2022 of 282.90p. The value of Peter Turner's award has been pro-rated for time based on the proportion of the performance period worked. The figure for 2021 has been trued up from that disclosed in last year's Remuneration Report to reflect the share price on the vesting date (21 March 2022) of 312.60p. The impact of share price movement on the vesting value of Pete Raby's and Peter Turner's 2020 LTIP award is as follows (Peter Turner's figures have been pro-rated):

	Pete Raby	Peter Turner
Value of awards vesting using share price at award (234.7p)	£577,827 (362,377 shares x 67.94% x 234.7p)	£354,815 (222,518 shares x 67.94% x 234.7p)
Value of awards vesting using three-month average share price at 31 December 2022 (282.90p)	£696,494 (362,377 shares x 67.94% x 282.90p)	£427,683 (222,518 shares x 67.94% x 282.90p)
Impact of share price movements on vesting values	£118,667	£72,868

6. Other: For Pete Raby and Richard Armitage comprises the value (£1,800) 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). For Richard Armitage, in addition to Sharesave options, 'other' includes a one-time award of restricted shares with a face value on grant of £443,000, granted in 2022 following his appointment to offset forfeited bonus from his prior employer. The face value of the award is higher (by £33,000) than that disclosed in the 2021 Annual Report due to Mr Armitage's forfeited bonus being higher than originally expected. This award is due to vest to Mr Armitage at the end of May 2023, on the first anniversary of grant.

Incentive outcomes for the year ended 31 December 2022

Annual bonus in respect of 2022 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 returns by rewarding the achievement of 'stretch' targets.

For 2022, the bonus targets for the executive Directors were split between Group headline operating profit* 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. Performance in line with target results in a payout of 50% of maximum.

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 2022 bonus targets for the executive Directors. Actual bonus payments are shown in the single total figure of remuneration table on page 102.

Performance measure	% of maximum bonus element	Performance range		Actual performance outcome	% payout of element	% salary earned
		Threshold (0% payout)	Maximum (100% payout)			
Group headline operating profit*	40%	131.2m	152.4m	136.3m	24.0%	14.4%
Cash generation*	40%	153.2m	178.1m	131.8m	0%	0%
Personal objectives						
Pete Raby	20%	Please see narrative below for further details on objectives and performance against these			90%	27%
Peter Turner ²	20%				100%	30%
Richard Armitage ³	20%				90%	27%

	Maximum bonus (% salary)	% of salary earned			Total outcome	Total payable
		Group headline operating profit	Cash generation*	Personal objectives		
Overall outcome						
Pete Raby	150%	14.4%	0%	27%	41.4%	£246,708
Peter Turner ²	150%	14.4%	0%	30%	44.4%	£78,320
Richard Armitage ³	150%	14.4%	0%	27%	41.4%	£102,623

¹ For the profit metric there was a straight-line payout between the threshold and maximum figures. All figures were calculated using 2022 budgeted exchange rates.

² Peter Turner stepped down from the Board on 30 May 2022, and retired from the Group on 30 June 2022. He was eligible for a pro-rated bonus payment based on the proportion of the year worked. The bonus payment value in the table above relates to the period 1 January to 30 May 2022, remuneration for the period 31 May to 30 June 2022 is covered in the Exit payments made in year section on page 106.

³ Richard Armitage joined the Group on 30 May 2022 and was eligible for a pro-rated bonus payment based on the proportion of the year worked.

Remuneration report continued

For 2022, personal objectives continued to be set for each executive Director in the key areas of: ESG (comprising Health, Safety & Environment, and People & Culture), Morgan's strategic delivery, and other identified priorities for the year.

Collective goals for 2022 (which applied to each executive Director) included:

1. Continue to develop and embed Morgan's culture of safety and environmental responsibility, driving the implementation of our 'thinkSAFE' training programme to plan, reducing the Group's LTA rate below 0.2 and deliver progress against our environmental commitments, and
2. Deliver progress against approved plans to create a diverse and inclusive workforce and encourage an open and positive culture, and deploy a revised leadership training programme to plan and build a strong succession pipeline.

In addition to the above, the following individual objectives were set for Pete Raby:

1. Complete market and prospect identification and develop an M&A pipeline that reflects a good strategic fit either by adding to our presence in our four faster growing markets or providing consolidation opportunities in our core
2. Lead the development of a common Voice of the Customer programme, to be rolled out and identified priority areas addressed to plan
3. Refresh our investor proposition and communications (including the ESG strategy) and deliver to investors through the year and through a specific capital markets event, and
4. Complete a scoping and sizing project to confirm the ERP platform choice, system scope and high-level deployment plan.

In addition to the collective goals identified above, Peter Turner's and Richard Armitage's individual objectives for 2022 were to:

1. Conclude the ongoing execution of plans to strengthen the control environment and prepare for UK SOx legislation, and
2. Establish metrics and review processes to track, manage and deliver pricing increases that compensate for inflationary increases such that pricing plus continuous improvement is greater than cost inflation plus reinvestment, to maintain or increase GBU and Group margins.

Peter Turner had an additional objective to support an efficient and effective handover of responsibilities to the incoming CFO.

Performance of our leaders is assessed against all expectations of the role, specific personal objectives that are set and how outcomes are delivered with reference to our defined leadership behaviours.

Taking into account all of these considerations in the round, the personal performance element has been assessed at 90% of the maximum to reflect Pete Raby's delivery against the agreed strategic objectives and the leadership behaviours demonstrated in doing so. Despite a challenging operating environment, Morgan continued to deliver organic revenue growth and operating margin expansion. Safety training was deployed within all plants to plan, and the robustness of plant-level safety practices was enhanced. Good progress continues to be made towards our sustainability goals, with absolute CO₂ emissions reducing throughout the year, and further process and infrastructure improvements being completed to drive water efficiency. The Company continues to prioritise its focus on diversity, establishing further employee resource groups – Military@Morgan and Prism (supporting LGBTQ+ employees and their allies) – in addition to Women@Morgan. The completion of the Company's employee engagement survey resulted in an improved engagement score year on year and, lastly, the first capital market event in nearly ten years was held to lay out an attractive investment proposition for the Group.

In addition to the valued contributions by Richard Armitage and Peter Turner to the collective goals identified above, both individuals made significant contributions during the year to driving operating margin expansion and led the substantial de-risking of the Company's pension position. In addition, Peter Turner fully delivered against the additional objective of supporting the CFO transition during the year. In light of their excellent contribution and the extent to which the objectives were assessed to be met, the personal performance element of Richard Armitage and Peter Turner's bonuses has been assessed at 90% and 100% of the maximum respectively.

Performance against the objectives above is referred to further in the Chairman's statement and elsewhere within the Annual Report.

2019 Deferred Bonus Plan vesting

In 2019, 33% of the annual bonus earned by Pete Raby and Peter Turner (for performance in the 2018 financial year) was deferred into shares under the Deferred Bonus Plan (DBP), in line with Morgan's Remuneration Policy. Dividends accrued over the deferral period on the deferred shares that vested, and the dividends were paid in shares at the end of the vesting period. Details of the DBP awards which vested in 2022 to the executive Directors are set out in the table below:

Director	Date of grant	Number of DBP shares granted	Number of dividend reinvestment shares	Total number of DBP shares vested	Market value at grant £	Market value at vesting £	Date of vesting
Pete Raby	19 March 2019	65,358	4,719	70,077	2.6812	3.126	18 March 2022
Peter Turner (retired from the Group 30.06.22)	19 March 2019	50,351	3,634	53,985	2.6812	3.126	18 March 2022

2020 LTIP award vesting

Awards granted to executive Directors in 2020 were subject to relative TSR performance, EPS growth and Group ROIC* over a three-year period ended 31 December 2022. The EPS target (applying to one-third of each award) required three-year EPS growth of 4% per annum for 25% of that element to vest, rising to full vesting for EPS growth of 11% per annum or higher. Over the period Morgan Advanced Materials plc's actual EPS growth was 6.65%, which results in a 17.79% vesting for this element.

The TSR element (applying to one-third of each award) required Morgan Advanced Materials plc's three-year TSR performance to rank at median against two comparator groups (equally split) – the FTSE All-Share Industrials Index and a tailored comparator group comprising 15 listed international carbon, ceramics and other materials companies – for 25% of that element to vest, rising to full vesting if Morgan Advanced Materials plc's TSR ranked at or above the upper quartile against these two comparators.

Morgan Advanced Materials plc's TSR was 11.3%, which was at the 64th percentile versus the FTSE All-Share Industrials Index and at the 54th percentile versus the tailored comparator group. Accordingly, this results in a 16.83% vesting for the TSR element of the award.

The Group ROIC* target (applying to the remaining one-third of each award) required three-year Group ROIC* of 17% for 25% of that element to vest, rising to full vesting for Group ROIC* of 20% or higher. Morgan Advanced Materials plc's Group ROIC* was 20%, and accordingly this results in a 33.32% vesting for the ROIC* element of the award.

This combined performance resulted in a partial vesting of the 2020 awards equivalent to 67.94% of maximum. The vesting outcome is considered by the Committee to appropriately reflect business performance. Executive Directors' 2020 LTIP awards were granted later in the year than usual (5 October 2020) to allow the share price to recover from the general stock market downturn initially experienced at the onset of the pandemic, therefore reducing the risk of windfall gains resulting from a material bounce back in share price at vesting. The Committee will review the actual gain at the time of vesting (5 October 2023) to ensure a significant windfall does not arise.

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

Director	Maximum potential LTIP award	Maximum potential LTIP-CSOP ¹ award	Estimated LTIP award vesting	Estimated LTIP-CSOP award vesting	LTIP-CSOP ¹ award exercising	Date of vesting
Pete Raby	362,377	–	246,198	–	–	5 October 2023
Peter Turner ²	211,866	10,652	143,941	7,237	–	5 October 2023

1. CSOP refers to the Company Share Option Plan – further information is included in the Details of plans section later on in this report

2. In line with the provisions of the Policy, Peter Turner was treated as a good leaver in respect of outstanding LTIP awards. Peter Turner's award will therefore vest on a pro-rated basis calculated on the proportion of the performance period worked. Figures in the table reflect pro-rata to his retirement from the Group on 30 June 2022

For the purposes of the 2020 LTIP award (and consistent with the approach taken in previous years), the financial results were adjusted to neutralise the effects of closed businesses in 2020.

Pension (audited)

In 2022, Pete Raby and Peter Turner each received a cash allowance in lieu of pension of a fixed monetary value (unchanged since 2018). Pete Raby's allowance was £104,000 and Peter Turner's was £33,168 (being the annualised allowance of £80,120, pro-rated for the period 1 January to 30 May 2022 when he stepped down from the Board). Peter Turner's remuneration for the period 31 May to 30 June 2022 is covered in the Exit payments made in year section on page 106. Richard Armitage received a cash allowance in lieu of pension of 8% of base salary (pro-rated based on joining the Group on 30 May 2022), which is in line with the pension contribution available to the wider UK workforce.

Non-executive Director fees (audited)

The table below sets out the fees received by each non-executive Director in respect of the year ended 31 December 2022 and the prior year.

Douglas Caster		Helen Bunch		Laurence Mulliez		Jane Aikman		Clement Woon	
2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
£202,100	£197,166	£61,220	£59,918	£61,220	£59,918	£61,220	£59,918	£53,220	£51,918

Non-executive Directors do not receive any other fixed or variable pay, or benefits, in addition to their fee. Figures shown are inclusive of additional fees of £8,000 payable to Laurence Mulliez as Senior Independent Director and to Helen Bunch and Jane Aikman as Committee Chairs.

Scheme interests awarded in 2022

2022 LTIP awards

In 2022, Pete Raby and Richard Armitage were granted awards under the LTIP as shown in the table below. The performance period for the 2022 LTIP awards is 1 January 2022 to 31 December 2024. Vesting outcomes will continue to be assessed to ensure they reflect business performance and will be adjusted as appropriate.

Remuneration report continued

Executive Director	Number of LTIP shares granted ¹	Value of awards at grant		
		£	As % of 2022 annualised salary	Date of vesting
Pete Raby	414,320	1,192,000	200%	13 May 2025
Richard Armitage	207,587	637,500	150%	30 May 2025

1. Calculated using the award prices of £2.877 and £3.071, being the average share price for the five dealing days prior to the award dates (13 May 2022 and 30 May 2022) for Pete Raby and Richard Armitage respectively

The Committee discusses and reviews the performance criteria for new three-year LTIP awards before they are granted. For the awards granted in 2022, the Committee considered the balance of measures in light of the Group's business plan and shareholder feedback and as part of the Remuneration Policy review decided to introduce an ESG metric (carbon reduction in terms of scope 1 and 2 emissions) to further support Morgan's overall targets and purpose. The revised weightings across all performance measures are shown in the table below. The TSR element continues to be 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 Industrials Index and one-half will vest based on Morgan's TSR performance relative to a tailored comparator group of 15 industry comparators.

The table below sets out the targets attaching to the 2022 LTIP awards:

TSR vs FTSE All-Share Industrials Index	% of award that vests	TSR performance	% of award that vests	EPS growth	% of award that vests	Group ROIC [*]	% of award that vests	ESG (carbon reduction)	% of award that vests
		vs peer group							
Upper quartile	15%	Upper quartile	15%	13% pa	27.5%	20%	27.5%	15%	15%
Median	3.75%	Median	3.75%	6% pa	6.88%	17%	6.88%	5%	3.75%
Below median	Nil	Below median	Nil	< 6% pa	Nil	<17%	Nil	<5%	Nil

For executive Directors, a two-year holding period applies to any shares that vest in relation to the 2022 LTIP. Dividends accrue over this holding period and will be paid on any shares that vest.

2022 Deferred Bonus Plan awards

In 2022, 33% of the annual bonus results for Pete Raby and Peter Turner (for performance in the 2021 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:

Executive Director	Value of awards at grant		
	Number of DBP shares granted ¹	Value of award £	Date of vesting
Pete Raby	89,853	281,870	21 March 2025
Peter Turner	65,887	206,688	21 March 2025

1. Calculated using the award price of £3.137, being the average share price for the five dealing days prior to the award date (21 March 2022)

Recruitment award

As noted in last year's report and referenced in the footnote to the single figure table on page 102, Richard Armitage was granted a one-time award of restricted shares with a face value of £443,000 to offset the bonus forfeited from his previous employer. This award will vest after 12 months, conditional on Mr Armitage not having resigned or having been dismissed in specified circumstances. Details of the award are set out below:

Executive Director	Value of awards at grant		
	Number of shares granted ¹	£	As % of 2022 annualised salary
Richard Armitage	144,252	443,000	104%

1. Calculated using the award price of £3.071, being the average share price for the five dealing days prior to the award date (30 May 2022)

Exit payments made in year (audited)

Payments made to Peter Turner from 1 January to 30 May 2022 (when he stepped down from the Board) are captured in the single figure table on page 102, and include the full estimated value of his pro-rated 2020 LTIP award which is due to vest in October 2023. In relation to the period between 31 May 2022 and when he retired from the Group on 30 June 2022, Peter Turner received £60,903 in remuneration, comprising salary, pension allowance, benefits and bonus pro-rated for this period. No other exit payments were made to Peter Turner or other executive Directors during the 2022 financial year.

Payments to past Directors (audited)

No payments (other than those captured in the single figure table and above in relation to Peter Turner) were made to past Directors during the 2022 financial year.

External appointments

Details of external appointments held by executive Directors and the fees retained in 2022 are provided in the table below:

Executive Director	Company	Role	Date of appointment	Fees paid & retained
Pete Raby	Hill & Smith PLC	Non-executive Director	2 December 2019	£53,840
Richard Armitage	NWF Group PLC	Senior Independent Director and Chair of the Audit Committee	5 July 2020	£43,200

Implementation of Remuneration Policy for 2023

Base salary

In line with the Remuneration Policy, executive Directors' salaries were reviewed by the Committee and increased for 2023 at the rates set out in the table below. As in previous years, the Group maintained the formal link between performance and pay within the senior leadership population in 2022; specifically, taking into account individual and Group performance, as well as salary relative to the relevant market. The increases awarded to Pete Raby and Richard Armitage were calibrated in line with this. The Committee considered the strong performance in their roles as well as the market positioning of their salaries, in determining to award increases. However, for 2023 the increases awarded to our executive Directors were lower than the average increases awarded to the wider workforce (4.5% in the UK) and other colleagues who received similar performance ratings (5.5% in the UK), reflecting the greater pressure from the cost-of-living crisis on take-home pay for our lower-paid colleagues, and the higher incentive leverage of executive Director remuneration. The table below shows the base salaries in 2022, and those that took effect from 1 January 2023:

Executive Director	Base salary at:		Increase
	1 January 2023	1 January or on appointment 2022	
Pete Raby	£620,000	£ 596,000	4%
Richard Armitage ¹	£442,000	£425,000	4%

1. Richard Armitage was appointed to the Board on 30 May 2022. The above figure for 2022 is an annualised amount.

The rationale for any future increases will continue to be disclosed in the relevant Annual Report on Remuneration.

Pension

Pete Raby and Richard Armitage will continue to receive a cash allowance in lieu of pension in 2023. These are aligned to the pension contribution levels available to the wider workforce (8% of salary, based on our UK population).

Annual bonus in respect of 2023 performance

The maximum bonus opportunity remains at 150% of salary (with the payout for on-target performance continuing to be 50% of the maximum).

33% of any bonus result will ordinarily be deferred into shares for a further three-year period. The performance measures attached to the annual bonus are as follows, the only change being the cash generation metric being replaced with year-end working capital:

Headline operating profit* – 40%

Year-end working capital – 40%

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. These targets will be disclosed retrospectively, at such time as they have become less commercially sensitive, and within three years of the end of the performance year.

2023 LTIP awards

In May 2023, Pete Raby and Richard Armitage will be granted awards under the 2023 LTIP with face values of 200% and 150% of their 2023 base salaries respectively. Formulaic vesting outcomes will continue to be evaluated by the Committee to ensure they reflect business performance and will be adjusted as appropriate. The three-year performance period over which performance will be measured began on 1 January 2023 and will end on 31 December 2025. Further details of the awards will be disclosed in next year's Remuneration Report.

The performance measures are detailed below:

- 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.

Remuneration report continued

- The EPS performance range has been set at 4%-11% per annum, in line with the EPS range set prior to the onset of the pandemic (and having been temporarily increased during the pandemic to take into account the previously reduced base level resulting from the impact of the pandemic).
- The ROIC* range will remain unchanged at 17%-20%.
- The ESG measure (carbon reduction) will have a performance range of 5% to 15% carbon reduction (scope 1 and 2 emissions) over the three-year performance period, to support the Group's overall sustainability goals and its stated 2030 target to reduce scope 1 and 2 CO₂ emissions by 50%.
- 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 four 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 2023 LTIP cycle, executive Directors will be required to hold any vested 2023 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 2022. The table below shows the fees in 2022, and those that were agreed for 2023:

Role	2023 fee pa	2022 fee pa	Increase
Chairman ^{1,2}	£210,000	£202,100	3.9%
Non-executive Director ²	£54,820	£53,220	3%
Committee Chair (additional fee)	£8,000	£8,000	n/a
Senior Independent Director (additional fee)	£8,000	£8,000	n/a

1. Douglas Caster has voluntarily waived the increase in his fee for 2023

2. Ian Marchant will be paid the non-executive Director fee from 1 February 2023 until he succeeds Mr Caster as Chairman, at which point his fee will comprise the Chairman's annual fee of £210,000 plus an £18,000 contribution towards the cost of administrative support.

Percentage change in Directors' remuneration

The table below shows the percentage change in the executive and non-executive Directors' remuneration in 2022 compared to the average percentage change in remuneration for other employees of Morgan Advanced Materials plc over the same period, in accordance with the guidelines.

	2022 % change in salary or fees	2021 % change in salary or fees ²	2020 % change in salary or fees ³	2022 % change in benefits ⁴ (excluding pension)	2021 % change in benefits ⁴ (excluding pension)	2020 % change in benefits ⁴ (excluding pension)	2022 % change in annual bonus	2021 % change in annual bonus ⁵	2020 % change in annual bonus
Executive Directors									
Pete Raby	2.6%	32.3% (2.5%)	-19.4%	-0.1%	-0.5%	1.9%	-70.8%	1,029.3%	-89.1%
Richard Armitage	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Peter Turner	0% ¹	31.6% (2.0%)	-20.8%	2.4% ¹	0.6%	1.1%	-69.5%	1,023.8%	-89.3%
Non-executive Directors⁵									
Douglas Caster	2.5%	31.6% (2.0%)	-20.9%	n/a	n/a	n/a	n/a	n/a	n/a
Helen Bunch	2.2%	26.3% (1.7%)	-18.1%	n/a	n/a	n/a	n/a	n/a	n/a
Laurence Mulliez	2.2%	26.3% (1.7%)	-18.1%	n/a	n/a	n/a	n/a	n/a	n/a
Jane Aikman	2.2%	26.3% (1.7%)	-18.1%	n/a	n/a	n/a	n/a	n/a	n/a
Clement Woon	2.5%	31.6% (2.0%)	-20.9%	n/a	n/a	n/a	n/a	n/a	n/a
Average per employee	3.4%	3.6% (2.6%)	3.0%	-1.2%	0.9%	-5.8%⁶	-44.1%	53.6%	-2.1%

¹ Peter Turner stepped down from the Board on 30 May 2022 and retired from the Group on 30 June 2022. The percentages above are based on annualised figures

2. Figures in brackets reflect percentage increase from original 2020 salary/fee prior to reductions implemented in response to the pandemic.
3. Percentages reflect the temporary Board salary/fee reductions implemented in response to the pandemic. All figures are based on full-time equivalent comparisons.
4. Benefits figures include private medical insurance and car allowance. The decrease in Pete Raby's and other employees' benefits reflects a reduction in private medical premium over time.
5. Non-executive Directors do not receive any additional benefits or bonus payments.
6. Decrease reflects change in type of medical cover required by individual employees.
7. The personal performance element of the 2020 bonus was cancelled for executive Directors (as a result of the pandemic), contributing to the higher percentage increase in 2021 bonus for executive Directors compared to other employees.

CEO pay ratio

Year	Method	25th percentile pay ratio	Median (50th percentile) pay ratio	75th percentile pay ratio
2022	Option B	65:1	39:1	34:1
2022 (excluding variable)	Option B	32:1	22:1	16:1
2021¹	Option B	91:1	59:1	48:1
2021 (excluding variable)	Option B	32:1	24:1	17:1
2020	Option B	35:1	25:1	20:1
2020 (excluding variable)	Option B	25:1	20:1	14:1
2019	Option B	74:1	62:1	41:1
2019 (excluding variable)	Option B	34:1	27:1	19:1

1. Ratios trued up from those disclosed in last year's Remuneration Report to reflect final value of LTIP vesting for CEO.

Details of the salary and total pay and benefits figures for each of the individuals identified in the table is set out below:

Year	Salary				Total pay and benefits			
	CEO	25th percentile	Median (50th percentile)	75th percentile	CEO	25th percentile	Median (50th percentile)	75th percentile
2022	£596,000	£21,414	£23,225	£41,202	£1,658,639	£25,451	£42,005	£49,371
2021	£581,175	£17,379	£29,129	£37,989	£2,041,667	£22,533	£34,725	£42,442
2020	£439,425	£21,000	£23,960	£36,900	£791,238	£22,464	£31,550	£38,723
2019	£545,000	£17,599	£24,300	£30,610	£1,618,605	£21,958	£25,927	£39,926

In line with the CEO pay ratio regulations, the table above shows for 2022 the ratio of the CEO's single total figure of remuneration (STFR) to that of UK employees at the 25th, 50th (median) and 75th percentiles. In addition to the mandatory calculation using total remuneration, ratios have also been calculated excluding variable pay elements such as bonus and share awards.

Of the three reporting options available to companies, Morgan has applied Option B, where the most recent gender pay gap reporting data has been used to identify the 25th, 50th and 75th percentile employees. The 25th, 50th and 75th percentile pay ratios are based on the remuneration of a representative employee who falls on each of these pay percentiles. Option B has been used to calculate the CEO pay ratios, as Option A requires the ability to calculate a single total remuneration figure for each UK employee, and Morgan does not currently have the systems in place to support this methodology. The 'best equivalent' employees identified using the gender pay gap information are representative of the 25th, 50th and 75th percentiles of Company remuneration, since base pay constitutes a large proportion of the remuneration package for the majority of employees, so it is likely that a similar set of employees would have been identified using Option A. The calculation covers base pay, annual bonus, pension and where applicable share awards and benefits including car allowance and private medical insurance. Total remuneration figures used in the calculation for 25th, 50th and 75th percentile employees include annual bonus relating to 2022 performance, in order to be consistent with the methodology used for the CEO's total remuneration figure.

2022 CEO pay ratios are significantly lower than those in 2021 as a consequence of the impact of the inflationary headwinds on 2022 business results (and therefore on levels of variable pay), especially with variable pay representing a greater proportion of the CEO's package compared to the wider workforce. The 2022 ratios are not however as low as in 2020 where, as disclosed in the 2020 Remuneration Report, ratios were significantly lower as a consequence of the CEO's temporary salary reduction, cancellation of the CEO's personal performance bonus element in response to the COVID-19 pandemic, and also due to the pandemic's impact on business results (and variable pay outcomes).

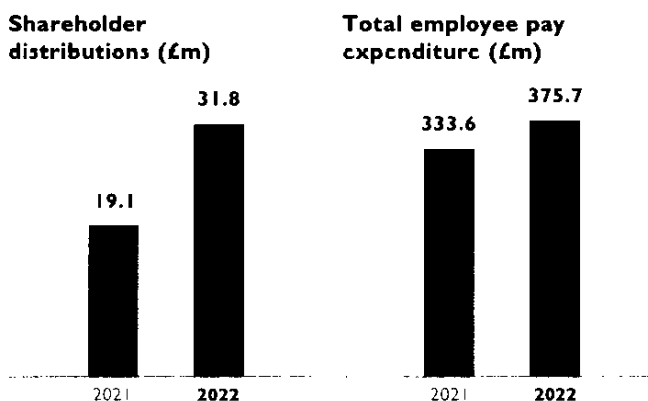
Notwithstanding the year-on-year change in pay ratio, pay and benefits for the CEO and wider employee population are based on the same philosophies, for example driving pay for performance and alignment to external benchmarks, in order to promote consistency, fairness and equity across all levels in the organisation. As the same methodology underpins the remuneration used in the above calculations, the resulting median pay ratio is consistent with the Company's wider policies on employee pay, reward and progression. Pay ratios are significantly reduced when variable pay elements are excluded, so the gap between CEO and employee pay is largely attributable to non-fixed pay elements, some of which (e.g. share awards) the majority of the wider workforce would not typically be eligible for (reflecting competitive external market practice). The range of levels and types of roles found in a manufacturing environment

Remuneration report continued

such as at Morgan may also result in a higher CEO pay ratio than companies which have predominantly professional and/or more senior staff. It is therefore important to compare Morgan's data to companies in similar industries.

Relative importance of spend on pay

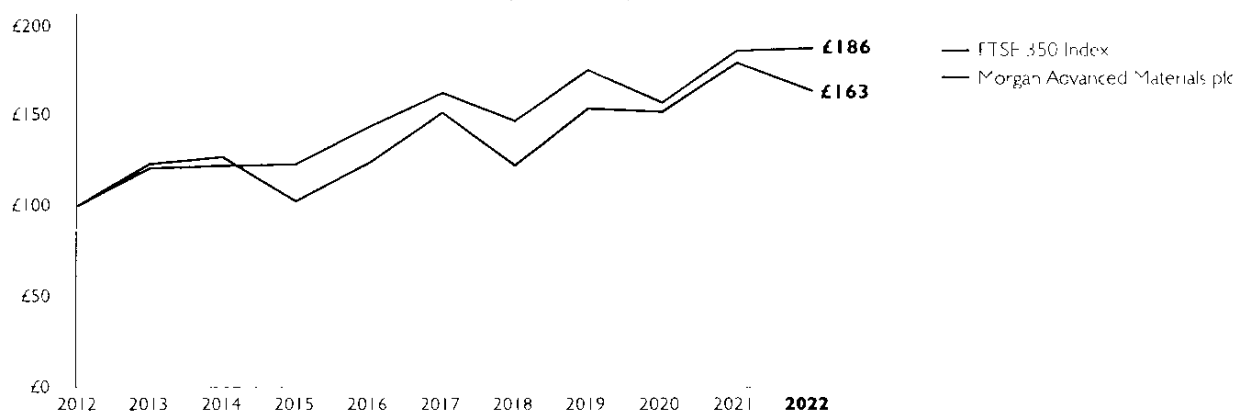
The graphs below show shareholder distributions (i.e. dividends and share buybacks) and total employee pay expenditure for the financial years ended 31 December 2021 and 31 December 2022.



Shareholder distributions increased back to pre-pandemic levels during 2022. Total employee pay across the Group has increased by 12.6% to £375.7 million (2021: £333.6 million).

Comparison of Company performance

The graph below shows the value, at 31 December 2022, of £100 invested in Morgan Advanced Materials plc's shares on 31 December 2012 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 10-year period to 31 December 2022.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CEO	M Robertshaw									P Raby
CEO single figure	£648,932	£1,001,448	£788,252	£787,492	£1,210,856	£1,479,738	£1,618,605	£791,238	£2,041,667	£1,658,639
Annual bonus (% of maximum)	0%	65%	50%	29.5% ¹	71.3%	67.4%	84.3%	9%	97%	27.6%
BDSMP vesting (% of maximum)	0%	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LTIP vesting (% of maximum)	0%	0%	n/a	n/a	15.4%	42.9%	61.3%	21.8%	52.17%	67.94%

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.

Executive Directors' interests in shares and shareholding guidelines (audited)

The table below shows the shareholding of each executive Director against their respective shareholding guideline as at 31 December 2022 or date of leaving (in the case of Peter Turner).

	Shareholding guideline (% of 2022 salary)	Shares owned outright		Shares subject to performance ¹	Performance-tested but unvested shares ²	Shares subject to DBP deferral ³	Options vested but unexercised ⁴	Options granted but subject to continued employment ⁴	Current shareholding (% of 2022 salary) ⁵	Guideline met
		As at 1 January 2022 or date of joining	As at 31 December 2022 or date of leaving							
Pete Raby	200%	318,637	446,686	690,806	246,198	113,529	4,477	4,285	270.1%	Yes
Richard Armitage	200%	–	40,000	207,587	144,252	–	–	4,285	29.5%	Building
Peter Turner	200%	308,815	400,346	202,740	151,178	84,277	–	4,477	324.7%	Yes

1. 2021 and 2022 LTIP and LTIP-CSOP awards

2. The expected number of shares due to vest under the 2020 LTIP. Richard Armitage joined the Board on 30 May 2022. His performance-tested but unvested share award relates to the recruitment share award made on 30 May 2022 (to which no performance conditions were attached)

3. Estimated number of shares, net of tax (47%), deferred under the DBP

4. Options granted under the Sharesave scheme.

5. Based on an executive Director's annualised 2022 salary and the average share price for the three months to 31 December 2022 of 282.90 pence, comprising shares owned outright and shares subject to deferral.

As at 24 April 2023, the executive Directors' interests in shares had not changed since the end of the period under review. Unless otherwise stated, figures given in the tables on pages 111 to 113 are for shares or interests in shares.

Non-executive Directors' interests in shares (audited)

The table below shows the shareholding of each non-executive Director as at 31 December 2022.

	As at 1 January 2022	As at 31 December 2022
Douglas Caster	110,454	110,454
Laurence Mulliez	6,919	7,161
Helen Bunch	2,028	2,028
Jane Aikman	1,000	1,000
Clement Woon	55,000	55,000

As at 24 April 2023, the non-executive Directors' interests in shares had not changed since the end of the period under review.

Post-employment share ownership guidelines mechanics

Peter Turner stepped down from the Board on 30 May 2022, and retired from the Group on 30 June 2022. Under the Company's Remuneration Policy, he is required to hold shares equivalent to 200% of his salary until 30 June 2023, calculated by reference to his annualised salary and the three-month average share price to 31 December 2021. A written agreement was put in place between Mr Turner and the Company setting out these requirements. This agreement, together with Mr Turner's unvested LTIP and DBP awards, allows the Company to confirm that he continues to comply with his post-cessation shareholding requirements.

All other executive Directors, including future Directors, are required to build their shareholding through vesting of executive share awards in a Global Nominee over time to ensure policy compliance with share ownership guidelines, including post-employment guidelines. Mechanisms are in place to restrict the sale or transfer of vested shares held in the Nominee that are subject to (i) post-vesting holding periods and (ii) shareholder ownership guidelines on cessation of employment.

Remuneration report continued

Executive Directors' share plans (audited)

Pete Raby

LTIP

	Plan	As at 1 January 2022	Allocations during the year	Vested during the year	Lapsed during the year	As at 31 December 2022	Market price at date of allocation	Market price at date of vesting	Performance period
No further performance conditions, vested (subject to two-year post-vesting holding)	2019	293,711	–	153,229	140,482	–	268.12p	312.60p	01.01.19 – 31.12.21
	2019 funding	11,189	–	5,007	6,182	–	268.12p	312.60p	01.01.19 – 31.12.21
No further performance conditions, not yet vested	2020	362,377	–	–	–	362,377	234.70p	–	01.01.20 – 31.12.22
Subject to performance conditions	2021	276,486	–	–	–	276,486	315.30p	–	01.01.21 – 31.12.23
	2022	–	414,320	–	–	414,320	287.70p	–	01.01.22 – 31.12.24

Share options

	Plan	As at 1 January 2022	Granted during the year	Exercised during the year	Lapsed during the year	As at 31 December 2022	Option price at grant	Market price at date of vesting/ exercise	Performance/ maturity period
No further performance conditions, vested (subject to two-year post-vesting holding)	2019 LTIP- CSOP	11,189	–	5,837	5,352	–	268.12p	312.60p	01.01.19 – 31.12.21
Continued service met	Sharesave	4,477	–	–	–	4,477	201.00p	–	01.12.19 – 30.11.22
Subject to continued service	Sharesave	–	4,285	–	–	4,285	210.00p	–	01.12.22 – 31.05.26

Total interests in share plans

	As at 1 January 2022	As at 31 December 2022
	1,137,952 ^{1,2,3}	1,276,152 ^{1,4}

1. Includes a funding award of 11,189 shares used to pay the exercise price which arose on exercise of the CSOP, and therefore not transferable to Pete Raby.

2. Includes 2019 deferred bonus award

3. Includes 2020 and 2021 deferred bonus awards

4. Includes 2022 deferred bonus award

Richard Armitage

LTIP

	Plan	As at 1 January 2022 or date of joining	Allocations during the year	Vested during the year	Lapsed during the year	As at 31 December 2022	Market price at date of allocation	Market price at date of vesting	Performance period
Subject to performance conditions	2022	–	207,587	–	–	207,587	307.10p	–	01.01.22 – 31.12.24

Recruitment award

	Plan	As at 1 January 2022 or date of joining	Allocations during the year	Vested during the year	Lapsed during the year	As at 31 December 2022	Market price at date of allocation	Market price at date of vesting	Vesting period
Subject to continued service	2022	–	144,252	–	–	144,252	307.10p	–	30.05.22 – 30.05.23

Share options

	Plan	As at 1 January 2022 or date of joining	Granted during the year	Exercised during the year	Lapsed during the year	As at 31 December 2022	Option price at grant	Market price at date of vesting	Maturity period
Subject to continued service	Sharesave	–	4,285	–	–	4,285	210.00p	–	01.12.22 – 31.05.26

Total interests in share plans

	As at 1 January 2022 or date of joining	As at 31 December 2022
	–	356,124

Peter Turner LTIP

	Plan	As at 1 January 2022	Allocations during the year	Vested during the year	Lapsed during the year	As at date of leaving	Market price at date of allocation	Market price at date of vesting	Performance period
No further performance conditions, vested	2019	228,591	–	119,256	109,335	–	268.12p	312.60p	01.01.19 – 31.12.21
No further performance conditions, not yet vested	2020	254,239	–	–	–	254,239	234.70p	–	01.01.20 – 31.12.22
	2020 funding	12,782	–	–	–	12,782	234.70p	–	01.01.20 – 31.12.22
Subject to performance conditions	2021	202,740	–	–	–	202,740	315.30p	–	01.01.21 – 31.12.23

Share options

	Plan	As at 1 January 2022	Allocations/ grants during the year	Released/ exercised during the year	Lapsed during the year	As at date of leaving	Market/ option price at date of allocation/ grant	Market price at date of exercise/ vesting	Performance/ maturity period
Subject to performance conditions	2020	12,782	–	–	–	12,782	234.70p	–	01.01.20 – 31.12.22
Continued service met	Sharesave	4,477	–	4,477	–	4,477	201.00p	305.50p	1.12.19 – 30.12.22

Total interests in share plans

	As at 1 January 2022	As at 31 December 2022 or date of leaving
	846,309 ^{1,2,4}	633,254 ^{2,3,4}

1. Includes 2019 deferred bonus award.

2. Includes 2020 and 2021 deferred bonus awards.

3. Includes 2022 deferred bonus award.

4. Includes a funding award of 12,782 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.

Remuneration report continued

Details of plans

LTIP	<p>Details</p> <p>The performance conditions attached to the 2020 awards are set out on page 105.</p> <p>The performance conditions attached to the 2021 awards are on the same basis as the 2020 awards, except that the EPS range was amended to 15%-22%.</p> <p>The performance conditions attached to the 2022 awards are set out on pages 105 to 106</p>
LTIP-CSOP	<p>LTIP 2019: The award to the CFO was structured as LTIP awards in the form of a conditional award of free shares. 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 268.12 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 award is also subject to malus and clawback provisions.</p> <p>The provisions of these CSOP options, funding awards and LTIP awards were 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 150% of Pete Raby's 2019 annual salary. Vested funding awards were not transferable to the participant.</p> <p>LTIP 2020: The award to the CEO was structured as LTIP awards in the form of a conditional award of free shares. The CFO'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 234.70 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 award is also subject to malus and clawback provisions.</p> <p>The provisions of these CSOP options, funding awards and LTIP awards were 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 150% of Peter Turner's 2020 annual salary. Vested funding awards were not transferable to the participant.</p> <p>LTIP 2021 and 2022: The awards to the CEO, Peter Turner and Richard Armitage were structured as LTIP awards in the form of a conditional award of free shares.</p>
UK Sharesave	<p>Details</p> <p>HMRC-approved all-employee Sharesave scheme. Exercise price set at 20% discount to share price on date of grant. Options mature after the three-year savings period 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.</p>
Deferred Bonus Plan	<p>Details</p> <p>Mandatory deferral of one-third of gross bonus result relating to the previous year, which is provided as a conditional award of shares of 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 malus and clawback provisions.</p>
Recruitment award	<p>Details</p> <p>A one-off conditional award of shares on Richard Armitage's recruitment, to replace the value of bonus forfeited by him on leaving his former employer to join Morgan. These shares vest subject to Richard Armitage's continued employment to the first anniversary of grant (in May 2023).</p>

Other transactions involving Directors are set out in note 26 (Related parties) to the consolidated financial statements. This Report was approved by the Board on 27 April 2023.

Remuneration governance

Remuneration Committee role

The Remuneration Committee determines and agrees with the Board the framework and Policy for the remuneration, including pension rights and any compensation payments, of the Group's executive Directors and the Chairman. The Committee also reviews the remuneration in relation to other senior executives and is kept fully informed of remuneration policy decisions impacting the wider workforce. The Committee's terms of reference are available on the Group's website.

The Remuneration Committee consults the Chief Executive Officer and invites him to attend meetings when appropriate. The Group Human Resources Director, the Group Head of Reward and Ellason LLP, the Committee's independent advisor, attend meetings of the Committee by invitation.

The Committee also has access to advice from the Chief Financial Officer. 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.

Remuneration Committee membership

The Remuneration Committee is currently composed of six 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 64.

Key activities during 2022

During 2022, the key areas of focus for the Committee were:

- engaging with shareholders on the proposed 2022 Remuneration Policy
- determining whether targets for the 2021 bonus and 2019 LTIP were achieved, and, if so, to what extent
- having reviewed the remuneration of the wider workforce, determining remuneration for executive Directors and other senior executives, applying consistent guiding principles
- reviewing whether the measures and structure for the bonus and share incentive schemes remain appropriate, as well as reviewing the overall effectiveness of such schemes
- reviewing and agreeing executive Director personal objectives for 2023
- receiving reports on share awards to employees, and employee participation in the Sharesave scheme
- reviewing feedback from institutional investors ahead of the Company's 2022 Annual General Meeting
- reviewing executive Director share ownership guidelines, and Directors' holdings against the guidelines
- receiving regulatory and governance updates, and receiving reports on external market remuneration practices
- reviewing and discussing the Company's annual Gender Pay Gap Report
- appraising the independent remuneration advisor's performance and reviewing the terms of engagement
- approving the Chair's 2023 fees
- determining performance targets for the 2022 share incentive schemes, and
- reviewing the Committee's terms of reference.

Committee performance evaluation

The Committee's performance was reviewed as part of the Board evaluation (see page 74 for details). It was concluded that the Committee had operated effectively during the period under review.

Remuneration report continued

Committee advisor

Ellason LLP was appointed as the Committee's executive remuneration advisor, following their principal advisor moving from Mercer Kepler to Ellason LLP, from 1 January 2021. Ellason specialises in executive remuneration advice and during 2022 provided independent advice on remuneration policy, 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. Ellason reports directly to the Chair of the Remuneration Committee, does not provide any non-remuneration-related services to the Group, has no other connections either with Morgan or any of its individual Directors, and is considered to be independent.

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

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

Advisor	Fees (including expenses, excluding VAT)
Ellason	£23,983

Summary of shareholder voting

The following table shows the results of the latest binding vote on the 2022 Remuneration Policy and advisory vote on the 2021 Annual Report on Remuneration at the 2022 AGM.

Resolution	For	Against	Withheld
Remuneration Policy	96.45%	3.55%	98,036
Annual Report on Remuneration	99.27%	0.73%	102,306

Compliance statement

During the year under review, the Company has complied with the provisions relating to Directors' remuneration in the UK Corporate Governance Code except for provision 38. Executive Directors' pension contributions were aligned with those available to the workforce, for incumbent Directors effective 31 December 2022 and on appointment for Directors appointed during 2022, as set out in more detail on page 92. This Remuneration Report has been prepared in accordance with the Companies Act 2006 (as amended) and Schedule 8 of the Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended). In accordance with section 439 of the Companies Act 2006 an advisory resolution to approve the Annual Report on Remuneration will be proposed at the Annual General Meeting (AGM) on 29 June 2023.

Signed on behalf of the Board

Helen Bunch
Committee Chair

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 60 to 120 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 2023 AGM will be held on 29 June 2023, commencing at 10:30am at the offices of Slaughter and May at One Bunhill Row, London, EC1Y 8YY. A circular incorporating the 2023 Notice of AGM is available in the investor section of morganadvancedmaterials.com

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.

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 62 to 64.

Results and dividends

The total profit (attributable to owners of the parent and non-controlling interests) for the year ended 31 December 2022 was £96.7 million (2021: £81.8 million). The increase in profit for the period arises principally as a result of improved volumes and the impact of pricing and continuous improvement activity more than offsetting cost inflation. Profit before taxation for the same period was £131.6 million

(2021: £104.3 million). Revenue was £1,112.1 million (2021: £950.5 million) and operating profit was £140.8 million (2021: £113.1 million). Basic earnings per share* from continuing operations was 30.6 pence (2021: 23.9 pence). Capital and reserves at the end of the year were £429.6 million (2021: £349.6 million). The total profit of £96.7 million (2021: £81.8 million) will be transferred to equity.

The Directors recommend the payment of a final dividend of 6.7 pence per share on the Ordinary share capital of the Company, payable on 3 July 2023 to shareholders on the register at the close of business on 9 June 2023. Together with the interim dividend of 5.3 pence per share paid on 18 November 2022, this final dividend, if approved by shareholders, brings the total distribution for the year to 12.0 pence per share (2021: 9.1 pence).

Directors

All those who served as Directors at any time during the year under review are set out on pages 62 to 63. Peter Turner also served as a Director up until 30 May 2022.

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 111.

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.

Other disclosures continued

Engagement with customers and suppliers

Details of the Group's engagement with customers and suppliers are set out on pages 22 and 25 of the Strategic Report and on pages 67 and 73 of the Corporate Governance Report.

Information required by LR 9.8.4R

The information required to be disclosed by Listing Rule 9.8.4 can be found in the following locations:

Publication of unaudited financial information	On 4 November 2022, the Company published its trading update stating that adjusted operating profit (AOP) for the full year 2022 to be marginally above the top end of current analysts' forecasts. Actual AOP for the period was above/below analyst forecasts.
Details of any long-term incentive schemes	Remuneration Report, page 97
Shareholder waiver of dividends	Financial Statements, note 19, pages 163 to 165
Shareholder waiver of future dividends	Financial Statements, note 19, pages 163 to 165

The remaining disclosures required by LR 9.8.4 are not applicable to the Company.

Overseas branches

As at 31 December 2022, the Company had branches as follows:

- Morgan AM&T BV (Sweden and Belgium)
- Carbo San Luis SA (Peru) (in liquidation)
- Morgan Advanced Materials Industries Ltd (UAE)
- Morgan Advanced Materials plc (Belgium)
- Thermal Ceramics UK Limited (Sweden)

People

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.

Employment of disabled people

Morgan has a range of employment policies which set out the standards, processes, expectations and responsibilities of its people and the organisation. These policies are designed to ensure that everyone, including those with existing or new disabilities, are dealt with fairly and have equal opportunity.

Morgan promotes equal opportunities for all employees and job applicants and does not unlawfully discriminate. The Group makes reasonable adjustments to accommodate any employee who may have a disability within the meaning of all global equality legislation, and where the Group is aware of such disability.

Research and development

The Group recognised £31.6 million in expense in respect of research and development (2021: £28.5 million). The Group did not capitalise any development costs in 2022 (2021: £nil). Morgan has established four Centres of Excellence (CoEs), which are dedicated to driving materials development, to exacting customer specifications, and delivering performance through materials and production process innovation. The CoEs consolidate the Group's R&D efforts around its core technologies, to increase the effectiveness of Morgan's R&D spend, accelerate key projects and increase technical differentiation. The CoEs focus on the execution priorities for the global business units and the Group.

Greenhouse gas emissions, energy consumption and energy efficiency

Details of the Group's annual greenhouse gas emissions, energy consumption and energy efficiency are shown in the ESG goals section on pages 32 and 33.

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 21 to the consolidated financial statements on pages 166 to 176. 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 2022 is set out in note 40 to the consolidated financial statements on page 199. The rights and obligations attaching to the Company's Ordinary shares, and restrictions on the transfer of shares in the Company (which include specific circumstances in which the Board is entitled to refuse to register the transfer of shares), 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.

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.

Additionally the Company has authorised, issued and fully paid 437,281 (2021: 437,281) cumulative Preference shares classified as borrowings totalling £0.4 million (2021: £0.4 million). The Preference shares comprise 125,327 of 5.5% Cumulative First Preference shares of £1 each and 311,954 issued 5.0% Cumulative Second Preference shares of £1 each.

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 19 to the consolidated financial statements on page 165.

Share allotment and repurchase authorities

The Directors were granted authority at the 2022 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 an aggregate nominal amount of £23,780,832 in any circumstances. This amount represented approximately one-third of the Company's issued share capital prior to that meeting. The Directors were also authorised to allot shares and to grant rights up to an aggregate nominal amount of £47,561,664 in connection with a rights issue only (but such amount to be reduced by any allotments made under the first limb of the authority). This amount represented approximately two-thirds of the Company's issued share capital prior to the meeting.

The Directors were also empowered at the 2022 AGM to allot shares for cash on a non-pre-emptive basis, both in connection with a rights issue or similar pre-emptive issue and, otherwise than in connection with any such issue, up to a maximum aggregate nominal amount of £3,567,124. Such amount represented approximately 5% of the Company's issued share capital as it stood prior to the meeting in line with the Pre-Emption Group's Statement of Principles on disapplying pre-emption rights. As permitted by those Principles, the Directors were also empowered to allot shares for cash on a non-pre-emptive basis up to the same amount for use only in connection with an acquisition or a specified capital investment.

The Directors were also authorised at the 2022 AGM to repurchase shares in the capital of the Company up to a maximum aggregate number of 28,536,998 shares. This represented approximately 10% of the Company's issued share capital prior to the meeting.

These share capital authorities and powers are due to lapse at the 2023 AGM at which time the Board will seek fresh authorities and powers.

Employee share and share option schemes

The Company operates a number of employee share and share option schemes. Details of outstanding share awards and share options are given in note 23 to the consolidated financial statements on pages 181 to 183.

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 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 as to whether to accept or reject the offer in respect of any shares held by them.

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 £230 million multi-currency revolving credit facility agreement, which was signed on 18 November 2022 and the privately placed Note Purchase and

Guarantee Agreements signed on 27 October 2016 and 20 March 2017, for which the aggregate outstanding loan amounts are US\$137 million and €85 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

Morgan experienced a cyber security incident in January 2023, having detected unauthorised activity on the network. Immediate steps were taken to contain the incident, launch incident response plans, engage specialist support services and embark on restoring systems. All manufacturing sites are operational, although some continue to use manual processes as work continues to restore their systems. There has been no impact on the financial results reported for the year ended 31 December 2022.

We expect to incur around £15 million of system recovery and specialist support costs, including IT asset impairment charges of £0.7 million. These will be presented separately as specific adjusting items in the consolidated income statement for the year ending 31 December 2023.

Major shareholdings

As at the date of this report, insofar as it is known to the Company by virtue of notifications made in accordance with DTR 5, the table below sets out holders of notifiable interests representing 3% or more of the issued Ordinary share capital of the Company (such holdings may have changed since notification to the Company).

	As at 31 December 2022	
	Number of Ordinary shares	Percentage of issued share capital
Ameriprise Financial Inc., and its group	24,186,489	8.48
FIL Limited	15,414,047	5.40
Janus Henderson Group plc	14,540,443	5.10
Aberforth Partners LLP	14,338,459	5.03
Black Creek Investment Management Inc.	14,269,458	5.00
BlackRock, Inc.	14,263,250	4.99
M&G Plc	14,251,115	4.99
AXA Investment Managers SA	14,039,985	4.92
GLG Partners LP	11,410,477	3.99

No changes have been notified to the Company pursuant to Chapter 5 of the Disclosure Guidance and Transparency Rules between the end of the period under review and 27 April 2023, the latest practicable date prior to the date of this report.

Other disclosures continued

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 consolidated financial statements in accordance with United Kingdom adopted international accounting standards and applicable law and have elected to prepare the Parent company financial statements in accordance with UK Accounting Standards, including FRS 101 Reduced Disclosure Framework.

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 consolidated financial statements, state whether they have been prepared in accordance with United Kingdom adopted international accounting standards.
- Assess the Group and Parent company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern.
- 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. They are responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and 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.

- Prepare the financial statements on the going concern basis of accounting unless they intend to liquidate the Group or the Parent company or to cease operations or have no realistic alternative but to do so.

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. They are responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and 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 62 to 63, confirm that, to the best of their knowledge:

- The Group's consolidated financial statements, which have been prepared in accordance with United Kingdom adopted international accounting standards, give a true and fair view of the assets, liabilities, financial position and profit of the Group.
- 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 2022.

For the purposes of DTR 4.1.5R(2) and DTR 4.1.8, the Directors' Report on pages 60 to 120 and the Strategic Report on pages 2 to 59 comprise the management report, including the sections of the Annual Report and consolidated financial statements incorporated by reference.

Each Director holding office at the date of approval of this Directors' Report confirms that, so far as they are aware, there is no relevant audit information of which the Company's auditor is unaware, and that they have taken all steps that they ought to have taken as a Director to make themselves 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 April 2023.

For and on behalf of the Board

Winifred Chime
Company Secretary

27 April 2023

Morgan Advanced Materials plc
York House
Sheet Street
Windsor
Berkshire SL4 1DD

Registered in England and Wales,
No. 286773

Independent Auditor's Report

Report on the audit of the financial statements

1. Opinion

In our opinion:

- > the financial statements of Morgan Advanced Materials plc (the 'Parent company') and its subsidiaries (the 'Group') give a true and fair view of the state of the Group's and of the Parent company's affairs as at 31 December 2022 and of the Group's profit for the year then ended;
- > the Group financial statements have been properly prepared in accordance with United Kingdom adopted international accounting standards and International Financial Reporting Standards (IFRSs) as issued by the International Accounting Standards Board (IASB);
- > the Parent company financial statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice, including Financial Reporting Standard 101 "Reduced Disclosure Framework"; and
- > the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements which comprise:

- > the Consolidated income statement;
- > the Consolidated statement of comprehensive income;
- > the Consolidated and Parent company balance sheets;
- > the Consolidated and Parent company statements of changes in equity;
- > the Consolidated statement of cash flows; and
- > the related notes 1 to 44.

The financial reporting framework that has been applied in the preparation of the Group financial statements is applicable law, United Kingdom adopted international accounting standards and IFRSs as issued by the IASB. The financial reporting framework that has been applied in the preparation of the parent company financial statements is applicable law and United Kingdom Accounting Standards, including FRS 101 "Reduced Disclosure Framework" (United Kingdom Generally Accepted Accounting Practice).

2. Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report.

We are independent of the Group and the Parent company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the Financial Reporting Council's (the 'FRC's') Ethical Standard as applied to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements. The non-audit services provided to the Group and Parent company for the year are disclosed in note 4 to the financial statements. We confirm that we have not provided any non-audit services prohibited by the FRC's Ethical Standard to the Group or the parent company.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

3. Summary of our audit approach

Key audit matters

The key audit matters that we identified in the current year were:

- > Inventory valuation;
- > Impairment of non-financial assets; and
- > Post year-end cyber security incident.

Materiality

The materiality that we used for the Group financial statements was £6.0m (FY21: £5.0m) which was determined based on 4.4% (FY21: 4.6%) profit before tax and specific adjusting items (see note 6).

Scoping

Full scope audit work was performed on 17 (FY21: 17) reporting components, and specified audit procedures were undertaken on a further 12 (FY21: 13) reporting components. Our full scope and specified audit procedures covered 72% of Group revenue (FY21: 72%) and 73% of absolute Group profit before tax (FY21: 74%).

Significant changes in our approach

Our audit approach is consistent with the previous year, with the exception of identifying a new key audit matter this year relating to a post year-end cyber security incident.

Independent Auditor's Report continued

4. Conclusions relating to going concern

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Our evaluation of the directors' assessment of the Group's and Parent company's ability to continue to adopt the going concern basis of accounting included:

- obtaining an understanding of the financing facilities including nature of facilities, repayment terms and covenants;
- obtaining an understanding of the controls around the budgeting and forecasting process used in the going concern preparation process;
- evaluating the linkage to business model and principal risks as identified on pages 12 and 40;
- challenging the assumptions used in the Board approved forecasts by reference to historical performance and other supporting evidence such as market data;
- challenging management's assessment of the cash flow impact of the cyber security incident response related activities and impact on trading forecasts;
- recalculation of the amount of headroom in the forecasts (in liquidity terms and against the relevant covenant limits);
- assessing the appropriateness of the sensitivity analysis and reverse stress tests performed by management;
- assessing the impact of macro-economic conditions on the business; and
- assessing the adequacy of the disclosures in the financial statements.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the Group's and Parent company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

In relation to the reporting on how the Group has applied the UK Corporate Governance Code, we have nothing material to add or draw attention to in relation to the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

5. Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) that we identified. These matters included those which had the greatest effect on: the overall audit strategy, the allocation of resources in the audit and directing the efforts of the engagement team.

These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

5.1. Inventory valuation

Key audit matter description

The Group manufactures thermal, carbon and technical ceramic products for a diverse range of end markets. The Group had material gross inventory balances of £174.2m as at 31 December 2022 (FY21: £140.7m). There is a risk that inventory is not valued appropriately because of local manufacturing sites not correctly applying the Group provisioning accounting policy to write-down the net realisable value of excess and obsolescent stock due to:

- System limitations, whereby significant manual intervention is required to record and value inventory, which requires regular manual adjustments to inventory; and
- The level of management judgement involved in determining whether a provision should be recognised and how it should be measured. The provision is typically determined based on ageing and expected future usage.

In the Consolidated Financial Statements, note 1 sets out the Group's accounting policy for inventory valuation and Note 15 provides further analysis of the account balance.

We have performed the following audit procedures in respect of this key audit matter:

- Assessed any unusual manual adjustments to inventory;
- Obtained an understanding of the relevant controls over the inventory provisioning process;
- Assessed the inventory ageing and assessed whether the group accounting policy of fully providing for inventory more than 12 months has been applied. For items less than 12 months we evaluated the breakdown of the inventory by age;
- Challenged management's key assumptions in determining inventory provisions by assessing the accuracy and completeness of items included in the provision by taking into account the impact on future usage; and
- Assessed the mathematical accuracy of the inventory provision by obtaining management's analysis and performing a recalculation based on the key inputs.

Key observations

Based on our procedures performed, we are satisfied that the valuation of inventory at 31 December 2022 is appropriate.

How the scope of our audit responded to the key audit matter

5.2. Impairment of non-financial assets

Key audit matter description

IAS 36 requires that at the end of each reporting period, an entity should assess whether there are any indicators of impairment or indicators that an impairment loss recognised in prior periods should be reversed. If such indication exists, the entity shall estimate the recoverable amount of that asset. Management's review for indicators of impairment or reversal identified sites and assets that required further consideration. Impairment indicators were identified for certain assets in Seals and Bearings Asia, Thermal Ceramics Europe, and Technical Ceramics Asia. Total impairment charges for the year were £6.5 million.

We focused the majority of our work on the carrying values of the cash generating units (CGUs) where the risk of impairment or impairment reversal was material and the model was sensitive to changes to the input assumptions:

- Seals and Bearings Asia, where an impairment of £1.6m was recorded in the year.
- Technical Ceramics Cores North America - where impairment of £28.8m has been recorded in previous years, and for which no reversal was made in the current year.

Management has determined the recoverable amount based on a value-in-use model calculated from cash flow projections, which are based on management's assumptions and estimates of future trading performance.

Estimating a value-in-use is inherently judgemental, and a range of assumptions can reasonably be applied in determining the estimates used therein. The key judgements in assessing non-financial assets for impairment are the discount rate, long-term growth rate, and the short-term projected cash flows. The value-in-use models are sensitive to changes in these estimates, all of which must reflect a long-term view of underlying growth in the respective economy within which these businesses operate and the reasonableness of projected cash flows.

We have focused this key audit matter to the discount rate and short-term future cash flows and material judgements contained therein. This is where the highest degree of sensitivity exists in determining the value-in-use.

The Audit Committee Report on page 82 refers to impairment of non-financial assets as an area considered by the Audit Committee. Note 1 to the Consolidated Financial Statements sets out the Group's accounting policy for testing of non-financial assets for impairment and contains further details on the key source of estimation uncertainty.

How the scope of our audit responded to the key audit matter

We have performed the following procedures in respect of this key audit matter:

- Obtained an understanding of the relevant key controls relating to the impairment process;
- Challenged management's indicator assessment for impairment or reversal by performing our own independent consideration of possible indicators;
- Assessed the integrity of management's impairment model through testing of the mechanical accuracy and the application of the input assumptions;
- Evaluated the process management undertook to prepare the cash flow forecasts in their impairment models including agreement with the latest Board-approved plans and management approved forecasts;
- Challenged the cash flow projections through assessing the accuracy of historical budgeting by comparing them with actual performance and independent evidence to support any significant expected future changes to the business;
- Assessed the impact of macro-economic conditions on the CGUs
- Assessed a range of available market data and performing a peer benchmarking exercise to assess and challenge the growth rates forecasted by management in revenue and margins;
- Assessed reasonable possible changes in assumptions to challenge the appropriateness of management's assessment of reasonable possible change scenarios; and
- Involved internal valuation specialists to assess the appropriateness of the discount rates used.

Key observations

Based on our procedures performed, we consider the key assumptions taken by management to be within an acceptable range. We have separately reported to the Audit Committee our control observations related to the review controls over the process to identify impairment indicators and the value in use models.

Independent Auditor's Report continued

5.3. Post year-end cyber security incident

Key audit matter description	<p>The Group was the subject of a cyber security incident in January 2023. Following the detection of unauthorised activity on its network, the Group took the decision to temporarily remove access and isolate various of its IT systems, including the Group's core financial reporting systems, while the threat was assessed. Following a forensic investigation, access to those systems was restored in an orderly manner.</p> <p>The Group has determined the cyber security incident to have occurred after the year-end date. Consequently, disclosure of the incident has been included as a Subsequent event in note 27 to the financial statements, including their estimate of the associated costs to be recorded in 2023.</p> <p>The Audit Committee Report on page 82 refers to cyber security as an area discussed by the Audit Committee.</p>
How the scope of our audit responded to the key audit matter	<p>We have performed the following procedures in respect of this key audit matter:</p> <p>With the assistance of our IT specialists, we have:</p> <ul style="list-style-type: none">➤ Held discussions with Finance and IT management to understand whether any control deficiencies existed that allowed the unauthorised activity to occur.➤ Held discussions with management's cyber experts and assessed their reports, to understand: the cause and timing of the cyber incident, which formed the basis of our challenge of whether this was a post year-end event. <p>the impact of the cyber incident and the assessment they have made regarding the availability and integrity of key information and data used in the financial reporting.</p> <ul style="list-style-type: none">➤ Assessed the capability, objectivity and competence of the experts used by management.➤ We considered whether the cyber breach would have an impact on the nature, timing and extent of our audit procedures to test the completeness and accuracy of information on which we relied and as a result performed further audit procedures where we considered it necessary. <p>We have assessed the Board's response to the incident, changes to the IT control environment since the incident, and the wider suite of remediation that has taken place to reduce the likelihood of similar incidents reoccurring.</p> <p>Based on our understanding gained of the cyber incident, we have re-evaluated our financial statement risk assessment. We performed incremental substantive testing relating to the risk of management override, focusing on journals recorded post year-end during periods of systems outages where a higher level of manual controls was operating.</p> <p>We have assessed the completeness and valuation of management's estimates of costs incurred or anticipated post year-end, impairment of IT assets as well as liabilities or contingent liabilities relating to the risk of any future investigation, litigation or fines.</p>
Key observations	<p>We did not identify any significant accounting issues as a consequence of the post year-end cyber incident. We concur with the conclusion that this is a non-adjusting post balance sheet event and that the disclosures made in the financial statements, including the estimate of costs, are reasonable.</p>

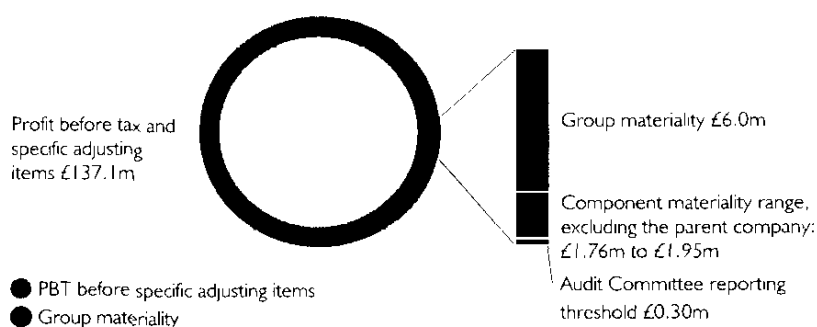
6. Our application of materiality

6.1. Materiality

We define materiality as the magnitude of misstatement in the financial statements that makes it probable that the economic decisions of a reasonably knowledgeable person would be changed or influenced. We use materiality both in planning the scope of our audit work and in evaluating the results of our work.

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

	Group financial statements	Parent company financial statements
Materiality	£6.0m (FY21: £5.0m)	£3.6m (FY21: £3.0m)
Basis for determining materiality	The materiality was determined based on 4.4% of profit before tax and specific adjusting items as described in note 6 (FY21: 4.6%).	Materiality was determined based on the Parent company's net assets (3%). This was then capped at 60% of Group materiality (FY21: 60%).
Rationale for the benchmark applied	Profit before tax and specific adjusting items is a key metric for users of the financial statements and reflects the way business performance is reported and assessed by external users of the financial statements.	The Parent company is non-trading and contains investments in all the Group's trading components and as a result, we have determined net assets for the current year to be the appropriate basis.



6.2. Performance materiality

We set performance materiality at a level lower than materiality to reduce the probability that, in aggregate, uncorrected and undetected misstatements exceed the materiality for the financial statements as a whole.

	Group financial statements	Parent company financial statements
Performance materiality	65% (FY21: 65%) of Group materiality	65% (FY21: 65%) of Parent company materiality
Basis and rationale for determining performance materiality	<p>In determining performance materiality, we considered the following factors:</p> <ul style="list-style-type: none"> > our risk assessment, including our assessment of the Group's overall control environment and our past experience of the audit; > the disaggregated nature of the Group and the degree of centralisation in the Group's financial reporting processes which reduces the likelihood of an individually material error; and > the level of corrected and uncorrected misstatements identified in the prior year audit. 	

6.3 Error reporting threshold

We agreed with the Audit Committee that we would report to the Committee all audit differences in excess of £0.30m (FY21: £0.25m), as well as differences below that threshold that, in our view, warranted reporting on qualitative grounds. We also report to the Audit Committee on disclosure matters that we identified when assessing the overall presentation of the financial statements.

7. An overview of the scope of our audit

7.1. Identification and scoping of components

The Group operates and manufactures in 70 sites in 18 countries spread across five continents with the largest footprint being in North America, Asia and Europe. Our Group audit was scoped by obtaining an understanding of the Group and its environment, including Group-wide controls, and assessing the risks of material misstatement at the Group and component level.

Based on that assessment, we focused our Group audit scope across all five of the established business units: Thermal Ceramics, Molten Metal systems, Seals and Bearings, Technical Ceramics and Electrical Carbon.

These five business units are composed of many individual reporting components, which are the lowest level at which management prepares financial information that is included in the Financial Statements. The Parent company is located in the UK and is audited directly by the Group audit team.

We have considered reporting components based on their contribution to Group revenue, and profit, as well as those that require local statutory audits in their jurisdiction. Full scope audit work was completed on 17 (FY21: 17) components and specified audit procedures were undertaken on a further 12 (FY21:13) components. Each reporting component in scope, excluding the parent company, was subject to an audit materiality level between £1.76m and £1.95m (FY21: 1.46m and £1.63m). Our full scope and specified audit procedures covered 72% of Group revenue (FY21: 72%) and 73% of absolute Group profit before tax (FY21: 74%).

Independent Auditor's Report continued

At a Group level, we tested the consolidation and performed analytical review procedures over components not in scope.

7.2. Our consideration of the control environment

The Group uses a number of different IT systems across the reporting components, and we worked with our IT specialists to obtain an understanding of the General IT controls for relevant systems. The control environment is decentralised and reliant on manual processes with improvements required to the IT environment in order for us to adopt a controls reliance approach to our audit. As management develops and completes its controls improvement programme of work in future years, we expect our audit approach to evolve alongside these developments in the internal control environment.

In response to a post year-end Cyber Security incident, we performed incremental procedures as described in section 5.3.

7.3. Our considerations of climate-related risks

In planning our audit, we have considered the potential impact of climate change on the Group's business and its financial statements.

The Group considers the risk and opportunities relevant to be an emerging issue for the Group. As a part of our audit procedures, we have obtained management's climate-related risk assessment and held discussions with those charged with governance to understand the process of identifying climate-related risks, the determination of mitigating actions and the impact on the Group's financial statements. While the directors

acknowledged that the transition and physical risks posed by climate change have the potential to impact the medium to long term success of the business, they have assessed that there is no material impact arising from climate change on the judgements and estimates made in the financial statements as at 31 December 2022 as explained in note 1 on page 135.

We performed our own qualitative risk assessment of the potential impact of climate change on the Group's account balances and classes of transaction and did not identify any additional risks of material misstatement. Our procedures include reading disclosures included in the Strategic Report to consider whether they are materially consistent with the financial statements and our knowledge obtained in the audit.

7.4. Working with other auditors

The audit work on all components was performed by Deloitte Touche Tohmatsu Limited member firms with the exception of one component business in France which continued to be audited by KPMG. The component work was performed under the direction, supervision and review of the Group audit team.

The planned programme which we designed as part of our involvement in the component auditors' work was delivered over the course of the Group audit. The extent of our involvement which commenced from the planning phase included:

- > Setting the scope of the component auditors and assessment of their independence;

- > Designing the audit procedures for all significant risks to be addressed by the component auditors and issuing Group audit instructions detailing the nature and form of the reporting required;
- > Providing direction on enquiries made by the component auditors through online and telephone conversations; and
- > A review of the component auditors' engagement file by a senior member of the Group engagement team.

8. Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The directors are responsible for the other information contained within the annual report.

Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements, or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated.

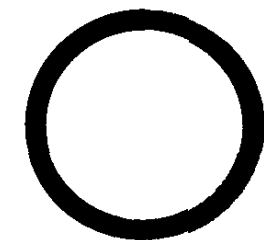
If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

9. Responsibilities of directors

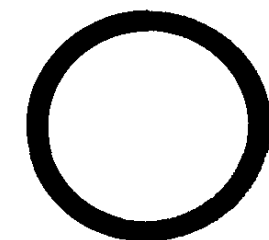
As explained more fully in the directors' responsibilities statement, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Revenue



● Full audit scope	54%
● Specified audit procedures	18%
● Review at group level	28%

Absolute Profit before tax



● Full audit scope	54%
● Specified audit procedures	19%
● Review at group level	27%

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

10. Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

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

11. Extent to which the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

11.1. Identifying and assessing potential risks related to irregularities

In identifying and assessing risks of material misstatement in respect of irregularities, including fraud and non-compliance with laws and regulations, we considered the following:

- the nature of the industry and sector, control environment and business performance including the design of the group's remuneration policies, key drivers for directors' remuneration, bonus levels and performance targets;
- results of our enquiries of directors, management, internal audit and the audit committee about their own identification and assessment of the risks of irregularities;
- any matters we identified having obtained and reviewed the group's documentation of their policies and procedures relating to:
 - identifying, evaluating and complying with laws and regulations and whether they were aware of any instances of non-compliance;
 - detecting and responding to the risks of fraud and whether they have knowledge of any actual, suspected or alleged fraud;
 - the internal controls established to mitigate risks of fraud or non-compliance with laws and regulations; and
 - the post year-end cyber security incident.
- the matters discussed among the audit engagement team including significant component audit teams and relevant internal specialists, including tax, valuations, pensions, and IT specialists regarding how and where fraud might occur in the financial statements and any potential indicators of fraud.

As a result of these procedures, we considered the opportunities and incentives that may exist within the organisation for fraud and identified the greatest potential for fraud in the following area: revenue recognition. In common with all audits under ISAs (UK), we are also required to perform specific procedures to respond to the risk of management override.

We also obtained an understanding of the legal and regulatory frameworks that the group operates in, focusing on provisions of those laws and regulations that had a direct effect on the determination of material amounts and disclosures in the financial statements. The key laws and regulations we considered in this context included the UK Companies Act, Listing Rules, pensions legislation and tax legislation in all relevant jurisdictions where the Group operates.

In addition, we considered provisions of other laws and regulations that do not have a direct effect on the financial statements but compliance with which may be fundamental to the group's ability to operate or to avoid a material penalty. These included the group's environmental regulations.

11.2. Audit response to risks identified

As a result of performing the above, we did not identify any key audit matters related to the potential risk of fraud or non-compliance with laws and regulations.

Our procedures to respond to risks identified included the following:

- reviewing the financial statement disclosures and testing to supporting documentation to assess compliance with provisions of relevant laws and regulations described as having a direct effect on the financial statements;
- enquiring of management, the audit committee and in-house legal counsel concerning actual and potential litigation and claims, including in respect of the cyber security incident as described in section 5.3;
- performing analytical procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud;
- reading minutes of meetings of those charged with governance, reviewing internal audit reports and reviewing correspondence with HMRC;
- in addressing the risk of fraud in relation to revenue recognition, we tested a sample of sales recognised during the period by agreeing to invoice, dispatch note and cash collection (where appropriate) to assess whether the performance obligations have been met; and
- in addressing the risk of fraud through management override of controls, testing the appropriateness of journal entries and other adjustments; assessing whether the judgements made in making accounting estimates are indicative of a potential bias; and evaluating the business rationale of any significant transactions that are unusual or outside the normal course of business.

Independent Auditor's Report continued

We also communicated relevant identified laws and regulations and potential fraud risks to all engagement team members including significant component audit teams and internal specialists and remained alert to any indications of fraud or non-compliance with laws and regulations throughout the audit.

Report on other legal and regulatory requirements

12. Opinions on other matters prescribed by the Companies Act 2006

In our opinion the part of the directors' remuneration report to be audited has been properly prepared in accordance with the Companies Act 2006.

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the strategic report and the directors' report have been prepared in accordance with applicable legal requirements.

In the light of the knowledge and understanding of the group and the parent company and their environment obtained in the course of the audit, we have not identified any material misstatements in the strategic report or the directors' report.

13. Corporate Governance Statement

The Listing Rules require us to review the directors' statement in relation to going concern, longer-term viability and that part of the Corporate Governance Statement relating to the group's compliance with the provisions of the UK Corporate Governance Code specified for our review.

Based on the work undertaken as part of our audit, we have concluded that each of the following elements of the Corporate Governance Statement is materially consistent with the financial statements and our knowledge obtained during the audit:

- the directors' statement with regards to the appropriateness of adopting the going concern basis of accounting and any material uncertainties identified set out on page 55;

- the directors' explanation as to its assessment of the group's prospects, the period this assessment covers and why the period is appropriate set out on page 55;
- the directors' statement on fair, balanced and understandable set out on page 120;
- the board's confirmation that it has carried out a robust assessment of the emerging and principal risks set out on page 40;
- the section of the annual report that describes the review of effectiveness of risk management and internal control systems set out on page 83; and
- the section describing the work of the audit committee set out on page 79.

14. Matters on which we are required to report by exception

14.1. Adequacy of explanations received and accounting records

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

- we have not received all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the parent company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent company financial statements are not in agreement with the accounting records and returns.

We have nothing to report in respect of these matters.

14.2. Directors' remuneration

Under the Companies Act 2006 we are also required to report if in our opinion certain disclosures of directors' remuneration have not been made or the part of the directors' remuneration report to be audited is not in agreement with the accounting records and returns.

We have nothing to report in respect of these matters.

15. Other matters which we are required to address

15.1. Auditor tenure

Following the recommendation of the audit committee, we were appointed in June 2019 to audit the financial statements for the year ending 31 December 2020 and subsequent financial periods. The Board's decision was approved by the shareholders at the AGM in May 2020. The period of total uninterrupted engagement of the firm is 3 years, covering the years ending 31 December 2020 to 31 December 2022.

15.2. Consistency of the audit report with the additional report to the audit committee

Our audit opinion is consistent with the additional report to the audit committee we are required to provide in accordance with ISAs (UK).

16. Use of our report

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.

As required by the Financial Conduct Authority (FCA) Disclosure Guidance and Transparency Rule (DTR) 4.1.14R, these financial statements will form part of the European Single Electronic Format (ESEF) prepared Annual Financial Report filed on the National Storage Mechanism of the UK FCA in accordance with the ESEF Regulatory Technical Standard ('ESEF RTS'). This auditor's report provides no assurance over whether the annual financial report has been prepared using the single electronic format specified in the ESEF RTS.

Jane Makrakis, ACA
(Senior statutory auditor)
For and on behalf of Deloitte LLP
Statutory Auditor

Reading, United Kingdom

27 April 2023



Financial statements

We are well placed to exploit our growth opportunities.

Richard Armitage
Chief Financial Officer

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Consolidated income statement

FOR THE YEAR ENDED 31 DECEMBER 2022

31 December 2022					31 December 2021		
	Note	Results before specific adjusting items £m	Specific adjusting items ¹ £m	Total £m	Results before specific adjusting items £m	Specific adjusting items £m	Total £m
Revenue	3	1,112.1	–	1,112.1	950.5	–	950.5
Operating costs before amortisation of intangible assets	4	(961.1)	(5.5)	(966.6)	(826.0)	(5.4)	(831.4)
Profit from operations before amortisation of intangible assets	3	151.0	(5.5)	145.5	124.5	(5.4)	119.1
Amortisation of intangible assets	4	(4.7)	–	(4.7)	(6.0)	–	(6.0)
Operating profit	3	146.3	(5.5)	140.8	118.5	(5.4)	113.1
Finance income		1.6	–	1.6	0.8	–	0.8
Finance expense		(10.8)	–	(10.8)	(10.0)	–	(10.0)
Net financing costs	7	(9.2)	–	(9.2)	(9.2)	–	(9.2)
Share of profit of associate (net of income tax)		–	–	–	0.4	–	0.4
Profit before taxation		137.1	(5.5)	131.6	109.7	(5.4)	104.3
Income tax expense	8	(37.1)	1.1	(36.0)	(29.7)	1.5	(28.2)
Profit from continuing operations		100.0	(4.4)	95.6	80.0	(3.9)	76.1
Profit from discontinued operations ²	9	–	1.1	1.1	–	5.7	5.7
Profit for the year		100.0	(3.3)	96.7	80.0	1.8	81.8
Profit for the year attributable to:							
Shareholders of the Company		91.3	(3.3)	88.0	71.5	2.3	73.8
Non-controlling interests		8.7	–	8.7	8.5	(0.5)	8.0
		100.0	(3.3)	96.7	80.0	1.8	81.8
Earnings per share	10						
Continuing and discontinued operations							
Basic earnings per share				31.0p			25.9p
Diluted earnings per share				30.7p			25.7p
Continuing operations							
Basic earnings per share				30.6p			23.9p
Diluted earnings per share				30.3p			23.7p
Dividends ³							
Interim dividend							
– pence				5.30p			3.20p
– £m				15.1			9.1
Proposed final dividend							
– pence				6.70p			5.90p
– £m				19.1			16.8

¹ Details of specific adjusting items from continuing operations are given in note 6 to the consolidated financial statements.

² Profits from discontinued operations are entirely attributable to the shareholders of the Company.

³ The proposed final dividend is based upon the number of Ordinary shares outstanding at the balance sheet date.

Consolidated statement of comprehensive income

FOR THE YEAR ENDED 31 DECEMBER 2022

		31 December 2022 £m	31 December 2021 £m
Profit for the year		96.7	81.8
Other comprehensive income/(expense):			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement gain on defined benefit plans	22	5.5	55.5
Tax effect of components of other comprehensive income not reclassified	8	(3.4)	(0.6)
		2.1	54.9
Items that may be reclassified subsequently to profit or loss:			
Foreign exchange translation differences		17.5	1.0
Tax effect of components of other comprehensive income that may be reclassified	8	–	(0.8)
Cash flow hedges:			
Change in fair value		(0.2)	(0.1)
Transferred to profit or loss		0.1	(0.4)
		17.4	(0.3)
Total other comprehensive income		19.5	54.6
Total comprehensive income		116.2	136.4
Attributable to:			
Shareholders of the Company		106.7	128.5
Non-controlling interests		9.5	7.9
		116.2	136.4
Total comprehensive income attributable to shareholders of the Company arising from:			
Continuing operations		105.6	122.8
Discontinued operations		1.1	5.7
		106.7	128.5

Consolidated balance sheet

AS AT 31 DECEMBER 2022

	Note	2022 £m	2021 £m
Assets			
Property, plant and equipment	11	283.2	248.1
Right-of-use assets	12	33.6	31.9
Intangible assets: goodwill	13	181.9	172.9
Intangible assets; other	13	7.1	10.2
Other receivables	16	3.2	2.9
Deferred tax assets	14	15.3	15.9
Total non-current assets		524.3	481.9
Inventories	15	174.2	140.7
Derivative financial assets		1.3	0.6
Trade and other receivables	16	202.5	161.4
Current tax receivable		0.3	0.6
Cash and cash equivalents	17	117.7	127.3
Total current assets		496.0	430.6
Total assets		1,020.3	912.5
Liabilities			
Borrowings	20	230.1	174.0
Lease liabilities	20	41.4	40.0
Employee benefits: pensions	22	15.6	102.7
Provisions	24	16.1	14.8
Non-trade payables	18	2.1	2.4
Deferred tax liabilities	14	2.0	1.2
Total non-current liabilities		307.3	335.1
Borrowings and bank overdrafts	20	36.1	–
Lease liabilities	20	10.5	9.8
Trade and other payables	18	195.0	177.2
Current tax payable		30.3	25.4
Provisions	24	9.9	14.8
Derivative financial liabilities		1.6	0.6
Total current liabilities		283.4	227.8
Total liabilities		590.7	562.9
Total net assets		429.6	349.6
Equity			
Share capital	19	71.3	71.3
Share premium		111.7	111.7
Reserves		35.1	18.5
Retained earnings		170.9	109.1
Total equity attributable to shareholders of the Company		389.0	310.6
Non-controlling interests		40.6	39.0
Total equity		429.6	349.6

The financial statements were approved by the Board of Directors on 27 April 2023 and were signed on its behalf by:

Pete Raby	Richard Armitage
Chief Executive Officer	Chief Financial Officer

Consolidated statement of changes in equity

FOR THE YEAR ENDED 31 DECEMBER 2022

	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
At 1 January 2021	71.3	111.7	(17.0)	0.4	(1.0)	35.7	0.6	0.6	202.3	37.7	240.0
Profit for the year	–	–	–	–	–	–	–	73.8	73.8	8.0	81.8
Other comprehensive income/(expense):											
Remeasurement gain on defined benefit plans and related taxes	–	–	–	–	–	–	–	54.9	54.9	–	54.9
Foreign exchange differences and related taxes	–	–	0.3	–	–	–	–	–	0.3	(0.1)	0.2
Cash flow hedging fair value changes and transfers	–	–	–	(0.5)	–	–	–	–	(0.5)	–	(0.5)
Total other comprehensive income/(expense)	–	–	0.3	(0.5)	–	–	–	54.9	54.7	(0.1)	54.6
Total comprehensive income/(expense)	–	–	0.3	(0.5)	–	–	–	128.7	128.5	7.9	136.4
Transactions with owners:											
Dividends	–	–	–	–	–	–	–	(19.1)	(19.1)	(6.6)	(25.7)
Equity-settled share-based payments	–	–	–	–	–	–	–	4.5	4.5	–	4.5
Own shares acquired for share incentive schemes (net)	–	–	–	–	–	–	–	(5.6)	(5.6)	–	(5.6)
At 31 December 2021	71.3	111.7	(16.7)	(0.1)	(1.0)	35.7	0.6	109.1	310.6	39.0	349.6
At 1 January 2022	71.3	111.7	(16.7)	(0.1)	(1.0)	35.7	0.6	109.1	310.6	39.0	349.6
Profit for the year	–	–	–	–	–	–	–	88.0	88.0	8.7	96.7
Other comprehensive income/(expense):											
Remeasurement gain on defined benefit plans and related taxes	–	–	–	–	–	–	–	2.1	2.1	–	2.1
Foreign exchange differences and related taxes	–	–	16.7	–	–	–	–	–	16.7	0.8	17.5
Cash flow hedging fair value changes and transfers	–	–	–	(0.1)	–	–	–	–	(0.1)	–	(0.1)
Total other comprehensive income/(expense)	–	–	16.7	(0.1)	–	–	–	2.1	18.7	0.8	19.5
Total comprehensive income/(expense)	–	–	16.7	(0.1)	–	–	–	90.1	106.7	9.5	116.2
Transactions with owners:											
Dividends	–	–	–	–	–	–	–	(31.6)	(31.6)	(7.9)	(39.5)
Equity-settled share-based payments	–	–	–	–	–	–	–	5.7	5.7	–	5.7
Own shares acquired for share incentive schemes (net)	–	–	–	–	–	–	–	(2.4)	(2.4)	–	(2.4)
At 31 December 2022	71.3	111.7	–	(0.2)	(1.0)	35.7	0.6	170.9	389.0	40.6	429.6

Details of the reserves are provided in note 19.

Consolidated statement of cash flows

FOR THE YEAR ENDED 31 DECEMBER 2022

	Note	31 December 2022 £m	31 December 2021 restated £m
Operating activities			
Profit for the year from continuing operations		95.6	76.1
Profit for the year from discontinued operations	9	1.1	5.7
Adjustments for:			
Depreciation – property, plant and equipment		30.3	30.1
Depreciation – right-of-use assets		7.8	7.9
Amortisation		4.7	6.0
Net financing costs	7	9.2	9.2
Profit on disposal of business	2, 6	(0.4)	(7.1)
Non-cash specific adjusting items included in operating profit		6.6	10.4
Share of profit from associate (net of income tax)		–	(0.4)
(Profit)/loss on sale of property, plant and equipment		(0.3)	0.3
Income tax expense	8	36.0	28.2
Equity-settled share-based payment expense	4	5.1	4.5
Cash generated from operations before changes in working capital and provisions		195.7	170.9
Increase in trade and other receivables		(26.5)	(17.2)
Increase in inventories		(25.2)	(20.1)
Increase in trade and other payables		7.0	28.3
Decrease in provisions		(4.9)	(5.8)
Payments to defined benefit pension plans (net of IAS 19 pension charges)	22	(85.9)	(16.9)
Cash generated from operations		60.2	139.2
Interest paid – borrowings and overdrafts		(7.0)	(6.1)
Interest paid – lease liabilities		(2.4)	(2.3)
Income tax paid		(31.8)	(25.4)
Net cash from operating activities		19.0	105.4
Investing activities			
Purchase of property, plant and equipment and software		(58.0)	(31.6)
Purchase of investments		–	(0.9)
Acquisition of business assets	2	–	(1.9)
Proceeds from sale of property, plant and equipment		0.6	5.5
Interest received		1.6	0.8
Disposal of investments	2	0.4	14.2
Disposal of subsidiaries, net of cash disposed	2	–	0.8
Net cash from investing activities		(55.4)	(13.1)
Financing activities			
Purchase of own shares for share incentive schemes	19	(2.9)	(5.9)
Proceeds from exercise of share options	19	0.5	0.3
Increase in borrowings	17	113.3	27.3
Reduction and repayment of borrowings	17	(39.0)	(99.6)
Payment of lease liabilities	17	(9.0)	(8.6)
Dividends paid to shareholders of the Company		(31.6)	(19.1)
Dividends paid to non-controlling interests		(7.9)	(6.6)
Purchase of shares from non-controlling interest		–	–
Net cash from financing activities		23.4	(112.2)
Net decrease in cash and cash equivalents		(13.0)	(19.9)
Cash and cash equivalents at start of the year		127.3	147.8
Effect of exchange rate fluctuations on cash held		3.4	(0.6)
Cash and cash equivalents at year end	17	117.7	127.3

(Comparative information has been restated to present the increase and reduction in borrowings separately.)

Notes to the consolidated financial statements

I. Significant accounting policies, estimates and judgements

Morgan Advanced Materials plc (the 'Company') is a public company limited by shares incorporated in the UK under the Companies Act and is headquartered in the UK. The address of the registered office is given in Shareholder information on page 208.

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 2–59.

The Group's 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 2022. The Group maintains a 12-month calendar financial year ending on 31 December.

The Group financial statements have been prepared and approved by the Directors in accordance with the requirements of the Companies Act 2006 and International Financial Reporting Standards ('IFRS') as adopted by the UK. 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 186–204.

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.

Significant accounting policies

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 designated as fair value through other comprehensive income ('FVOCI').

Functional and presentation currency

The Group's financial statements are presented in pounds sterling, which is the Company's functional currency.

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

I. Significant accounting policies, estimates and judgements (continued)

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. 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 values are 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, expenses and cash flows 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 and accumulated in the translation reserve.

Specific adjusting items

The Group uses specific adjusting items, which are not defined or specified under IFRS. These specific adjusting items, which are not considered to be a substitute for IFRS measures, provide additional helpful information. 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 provide the reader with an alternative understanding of the financial information and an indication of the underlying performance of the Group.

Revenue

Revenue is recognised when or as the Group satisfies a performance obligation by transferring a promised good or service to a customer. The Group's principal performance obligation is the provision of products and components, and is satisfied at a point in time and subject to payment terms typical to the geography in which the business operates. Products and components are transferred when the customer obtains control of the goods. For goods that are collected by the customer, revenue is recognised at the point the customer has taken physical possession of the goods. For contracts that include delivery of goods, the delivery element of the contract constitutes a separate performance obligation because it is distinct. For these contracts, control of the goods does not transfer to the customer until the goods have been delivered and therefore both performance obligations are satisfied simultaneously. Revenue for these contracts is therefore recognised on delivery.

Substantially all of the Group's revenue is derived from short-term contracts for the provision of products and components. A smaller portion of the Group's revenue relates to project-based business, principally within the Thermal Ceramics global business unit. Revenue for these contracts is recognised in line with fulfilment of contractual performance obligations stated in the contract and is not significant; consequently (except for trade receivables) the Group does not have significant assets or liabilities relating to its contracts with customers.

Revenue is only recognised to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur. The transaction price is determined as the amount receivable for the provision of products and components excluding rebates, discounts and similar items. Determining the transaction price does not require significant judgement. The costs incurred in obtaining contracts are not material. The Group acts as a principal in its transactions with customers. In 2022, there were no material adjustments to revenue which related to performance obligations satisfied in the previous year.

IFRS 15 Revenue from Contracts with Customers requires revenue to be disaggregated into categories that depict how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors. The Group discloses revenue disaggregated by geography, end-market and by global business unit, which are aligned by product type, in note 3 to the consolidated financial statements.

Research and development

The Group's research and development expenditure is widely dispersed with no individually material projects. It is often some time into a project before the Group is able to test technical or commercial feasibility and therefore whether the Group will continue to fund any individual project, as such materially all of the Group's expenditure is recognised in the income statement as an expense as incurred.

Development activities are capitalised when research findings are applied to a plan or design for the production of new or substantially improved products and processes and relate to a product or process that is technically and commercially feasible, and when the Group has sufficient resources to complete development, use and sale of products or processes. Capitalised development expenditure is stated at cost less accumulated amortisation and impairment losses.

I. Significant accounting policies, estimates and judgements (continued)

Finance income and expense

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, interest on IFRS 16 lease liabilities and net interest on IAS 19 pension assets and 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.

Taxation

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 equity or other comprehensive income, in which case it is recognised in equity or 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.

Discontinued operations

Where the Group has disposed of or has classified as held-for-sale a business component which represents a separate major line of business or geographical area of operations, it classifies such operations as discontinued. The post-tax profit or loss of the discontinued operations is shown as a single line on the face of the consolidated income statement, separate from the results of the rest of the Group.

Hedge accounting

The Group designates certain derivatives as hedging instruments in respect of foreign currency risk and interest rate risk in cash flow hedges. Hedges of foreign exchange risk on firm commitments are accounted for as cash flow hedges. At the inception of the hedge relationship, the Group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is effective in offsetting changes in fair values or cash flows of the hedged item attributable to the hedged risk, which is when the hedging relationships meet all of the following hedge effectiveness requirements:

- there is an economic relationship between the hedged item and the hedging instrument;
- the effect of credit risk does not dominate the value changes that result from that economic relationship; and
- the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

If a hedging relationship ceases to meet the hedge effectiveness requirement relating to the hedge ratio but the risk management objective for that designated hedging relationship remains the same, the Group adjusts the hedge ratio of the hedging relationship (i.e. rebalances the hedge) so that it meets the qualifying criteria again. The Group designates the full change in the fair value of a forward contract (i.e. including the forward elements) as the hedging instrument for all of its hedging relationships involving forward contracts.

Note 21 sets out details of the fair values of the derivative instruments used for hedging purposes.

Movements in the hedging reserve in equity are detailed in note 19.

Fair value hedges

The fair value change on qualifying hedging instruments is recognised in profit or loss.

Where hedging gains or losses are recognised in profit or loss, they are recognised in the same line as the hedged item

Notes to the consolidated financial statements continued

I. Significant accounting policies, estimates and judgements (continued)

Cash flow hedges

The effective portion of changes in the fair value of derivatives and other qualifying hedging instruments that are designated and qualify as cash flow hedges is recognised in other comprehensive income and accumulated under the heading of hedging reserve, limited to the cumulative change in fair value of the hedged item from inception of the hedge. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss.

Amounts previously recognised in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item affects profit or loss, in the same line as the recognised hedged item. However, when the hedged forecast transaction results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously recognised in other comprehensive income and accumulated in equity are removed from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability. This transfer does not affect other comprehensive income. Furthermore, if the Group expects that some or all of the loss accumulated in the hedging reserve will not be recovered in the future, that amount is immediately reclassified to profit or loss.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. Any gain or loss recognised in other comprehensive income and accumulated in cash flow hedge reserve at that time remains in equity and is reclassified to profit or loss when the forecast transaction occurs. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in the cash flow hedge reserve is reclassified immediately to profit or loss.

Property, plant and equipment

(i) Owned assets

Items of property, plant and equipment are stated at 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, plant and equipment are recognised in 'Operating costs before amortisation of intangible assets' in the income statement.

(ii) Depreciation of owned assets

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, equipment and fixtures	3-20 years

Leasing

The Group assesses whether a contract is or contains a lease at inception of the contract. The Group recognises a right-of-use asset and a corresponding lease liability with respect to all lease arrangements in which it is the lessee, except for short-term leases (defined as leases with a lease term of 12 months or less) and leases of low value assets (defined as leases of a value of less than USD5,000 at lease commencement). For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the term of the lease.

(i) Lease liabilities

The lease liability is initially measured at the present value of future lease payments, discounted by using the rate implicit in the lease or, where the rate cannot be readily determined, an incremental borrowing rate. The lease payments included in the lease liability comprise fixed lease payments, variable payments that depend on an index or rate and any payments due under lease extension, termination or purchase options to the extent they are assessed as reasonably certain.

The lease liability is subsequently measured by using the effective interest method and by reducing the carrying amount to reflect the lease payments made.

The Group remeasures the lease liability (and makes a corresponding adjustment to the related right-of-use asset) whenever there is a lease modification, a change in lease term or there is a significant event or change in circumstances resulting in a change in the assessment or exercise of other lease variables, such as purchase options. A remeasurement will also occur when the lease payments change due to changes in index rates.

I. Significant accounting policies, estimates and judgements (continued)

(ii) Right-of-use assets

The right-of-use assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement date, less any lease incentives received and initial direct costs. They are subsequently measured at cost less accumulated depreciation and impairment losses.

Whenever the Group incurs an obligation for costs to dismantle and remove a leased asset, restore the site on which it is located or restore the underlying asset to the condition required by the terms and conditions of the lease, a provision is recognised and measured under IAS 37. To the extent that the costs relate to a right-of-use asset, the costs are included in the related right-of-use asset, unless those costs are incurred to produce inventories.

(iii) Depreciation of right-of-use assets

Right-of-use assets are depreciated over the shorter period of lease term and useful life of the underlying asset. The depreciation starts at the commencement date of the lease.

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 not amortised. Goodwill is allocated to cash-generating units or groups of cash-generating units and is tested at least annually for impairment. If the recoverable amount of the cash-generating unit or group of cash-generating units is less than the carrying amount of the unit or group, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit or group and then to reduce the carrying amount of the other intangibles and other assets of the unit or group on a pro-rate basis. An impairment loss recognised for goodwill is not reversed in a subsequent period.

Other intangible assets

Other intangible assets that are acquired by the Group are stated at cost less accumulated amortisation (see below) and impairment losses.

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 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

When the Group incurs configuration and customisation costs as part of a cloud-based software-as-a-service agreement, and where this does not result in the creation of an asset which the Group has control over, then these costs are expensed.

Impairment of non-financial assets, excluding goodwill

The carrying amounts of the Group's assets and cash-generating units are reviewed at each balance sheet date to determine whether there is any indication of impairment. If any such indication exists, the asset or cash-generating unit's recoverable amount is estimated.

The recoverable amount of other assets and cash-generating units is the greater of their value in use and fair value less costs to sell. 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 or cash-generating unit. An impairment loss is recognised immediately in profit or loss.

An impairment loss is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised. A reversal of an impairment loss is recognised immediately in profit or loss to the extent that the asset's or cash-generating unit'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.

Investments in equity securities

Investments in equity securities held by the Group are classified as fair value through other comprehensive income ('FVOCI') and are stated at fair value, with any resultant gain or loss being recognised directly in other comprehensive income (in the fair value reserve). The gains or losses arising from changes in fair value are recognised in other comprehensive income until the security is disposed of, at which time the cumulative gain or loss previously recognised in other comprehensive income and accumulated in the FVOCI reserve is transferred to retained earnings.

Notes to the consolidated financial statements continued

I. Significant accounting policies, estimates and judgements (continued)

Inventories

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.

Trade and other receivables

Trade receivables are recorded initially at transaction price and subsequently measured at amortised cost less the loss allowance. The loss allowance is recognised based on management's expectation of losses without regard to whether an impairment trigger happened or not (an 'expected credit loss (ECL)' model). The Group measures the loss allowance for trade receivables at an amount equal to lifetime ECL, estimated based on historical write-offs and adjusted for forward-looking information where appropriate. Trade receivables more than 180 days past due are generally considered not recoverable and a 100% loss allowance is recognised, except where historical experience with certain customers or geographies indicates otherwise. The loss is recognised in the income statement. Trade receivables are written off when recoverability is assessed as being remote. Subsequent recoveries of amounts previously written off are credited to the income statement.

Cash and cash equivalents

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 borrowings for the purpose of the Group statement of cash flows.

Trade and other payables

Trade and other payables are recognised initially at transaction price. Subsequent to initial recognition they are measured at amortised cost using the effective interest method.

Borrowings

Borrowings are recognised initially at fair value less attributable transaction costs. Subsequent to initial recognition, 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.

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.

Pensions and other long-term service benefits

(i) Defined contribution plans

For defined contribution plans, the Group pays contributions to either publicly or privately administered pension 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.

I. Significant accounting policies, estimates and judgements (continued)

(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.

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.

Provisions, contingent liabilities and contingent assets

A provision is recognised in the consolidated balance sheet 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 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 market assessments of the time value of money and, where appropriate, the risks specific to the liability.

A contingent liability is disclosed, where significant, if 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. 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.

A contingent asset is not recognised but is disclosed, where significant, if an inflow of economic benefit is probable.

Preference share capital

Preference share capital is classified as a financial liability within borrowings if the substance of the shares does not contain an equity element. Dividends on Preference share capital are classified as finance charges within the consolidated income statement.

Share capital

Ordinary shares are classified as equity.

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 Morgan General Employee Benefit Trust ('the Trust') are presented as a deduction from total equity.

Dividends

Equity dividends on Ordinary share capital are recognised as a liability in the Company's financial statements on the date that the shareholder's right to receive payment is established. Dividends declared after the balance sheet date are not recognised as there is no present obligation at the balance sheet date.

Critical accounting judgements and key sources of estimation uncertainty

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.

Notes to the consolidated financial statements continued

I. Significant accounting policies, estimates and judgements (continued)

Critical accounting 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' judgement, need to be disclosed separately by virtue of their size and incidence in order for users of the consolidated financial statements to obtain an alternative understanding of the financial information and the underlying performance of the business. These are items which occur infrequently and include (but are not limited to):

- individual restructuring projects which are material or relate to the closure of a part of the business and are not expected to recur
- impairment of non-financial assets which are material
- gains or losses on disposal or exit of businesses
- significant costs incurred as part of the integration of an acquired business
- gains or losses arising on significant changes to or closures of defined benefit pension plans.

Determining whether an item is part of specific adjusting items requires judgement to determine the nature and the intention of the transaction.

Note 24: Provisions and contingent liabilities

Due to the nature of its operations, the Group holds provisions for its environmental obligations. Judgement is needed in determining whether a contingent liability has crystallised into a provision. Management assesses whether there is sufficient information to determine that an environmental liability exists and whether it is possible to estimate with sufficient reliability what the cost of remediation is likely to be. For environmental remediation matters, this tends to be at the point in time when a remediation feasibility study has been completed, or sufficient information becomes available through the study to estimate the costs of remediation.

The Group will recognise a legal provision at the point when the outcome of a legal matter can be reliably estimated. Estimates are based on past experience of similar issues, professional advice received and the Group's assessment of the most likely outcome. The timing of the utilisation of these provisions is frequently uncertain, reflecting the complexity of issues and the outcome of various court proceedings and associated negotiations.

Key sources of estimation uncertainty

The key assumptions concerning the future, and other key sources of estimation uncertainty at the reporting period that may have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are included in the notes below.

The potential climate change-related risks and opportunities to which the Group is exposed, as identified by management, are disclosed in the Group's TCFD disclosures on pages 38 and 39. Management has assessed the potential financial impacts relating to the identified risks, primarily considering the useful lives of property, plant and equipment, the possibility of impairment of goodwill and other long-lived assets and the recoverability of the Group's deferred tax assets. Management has exercised judgement in concluding that there are no further material financial impacts of the Group's climate-related risks and opportunities on the consolidated financial statements. These judgements will be kept under review by management as the future impacts of climate change depend on environmental, regulatory and other factors outside of the Group's control which are not all currently known.

Note 22: Pensions and other post-retirement employee benefits: key actuarial assumptions

The principal actuarial assumptions applied to pensions are shown in note 22, 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.

The Group has recognised a liability in relation to Guaranteed Minimum Pensions (GMPs), an initiative to remove inequalities in scheme benefits that arise from GMPs being unequal between men and women. A project to equalise members' benefits in the Morgan Pension Scheme is currently being progressed by a Joint Trustee and Employer Working Group.

I. Significant accounting policies, estimates and judgements (continued)

Note 24: Environmental provisions and contingent liabilities

Provisions for environmental costs are estimated based on current legal and constructive requirements. Actual costs and cash outflows can differ from current estimates because of changes in underlying factors including laws and regulations, public expectations, prices, more detailed analysis of site conditions and innovations in clean-up technology. The ultimate requirement for remediation and its costs are inherently difficult to estimate. Amounts provided are the Group's best estimate of exposure based on currently available information. Although at present no additional costs of environmental issues have been identified beyond our best estimate, future possible costs that are not provided for could be material to the Group's results in the period in which they are recognised. However, we do not expect these costs to have a material impact on the Group's financial position or liquidity.

Note 6: Impairment of non-financial assets (excluding goodwill)

In addition to the impairment assessment of goodwill management also monitors the performance of individual assets and cash-generating units. Where indicators of impairment exist, an impairment review on those assets or cash-generating units is performed.

For assets or cash-generating units which the business continues to use, the review process relies on the use of estimates of the future profitability and cash flows which may differ from the actual results delivered.

Where non-financial assets or cash-generating units are not utilised by the business and will not be utilised in the future they are written down to their recoverable amount. There is a lower level of judgement associated with these impairments.

Other assumptions and estimates which have a lower risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next 12 months include:

Notes 8 and 14: 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 judgements 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.

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 21: Credit risk

Note 21 contains information about the Group's exposure to credit risk, including a sensitivity analysis. The Group establishes a loss allowance for its estimate of expected credit losses against receivables.

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 2 to 59. The financial position of the Group, its cash flows, liquidity position and borrowing facilities, are described in the Financial Review on pages 50 to 54. In addition, note 21 to the consolidated 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 £230.0 million unsecured multi-currency revolving credit facility, which matures in November 2027. As at 31 December 2022, the Group had both significant available liquidity and headroom on its covenants. Total committed borrowing facilities were £418.3 million. The amount drawn under these facilities was £264.3 million, which together with net cash and cash equivalents of £116.2 million, gave a total headroom of £270.3 million. The multi-currency revolving credit facility was £76.0 million drawn. £34.5 million of senior notes are due to mature in October 2023.

The principal borrowing facilities are subject to covenants that are measured semi-annually in June and December, being net debt to EBITDA of a maximum of 3 times and interest cover of a minimum of 4 times, based on measures defined in the facilities agreements which are adjusted from the equivalent IFRS amounts.

The Group has carefully modelled its cash flow outlook, taking account of reasonably possible changes in trading performance, exchange rates and plausible downside scenarios, including the impact of the cyber security incident on 2023 cashflows. This review indicated that there was sufficient headroom and liquidity for the business to continue for the 18-month period based on the facilities available as discussed in note 21 to the financial statements. The Group was also expected to be in compliance with the required covenants discussed above.

Notes to the consolidated financial statements continued

1. Significant accounting policies, estimates and judgements (continued)

The Board has also reviewed the Group's reverse stress testing performed to demonstrate how much headroom is available on covenant levels in respect of changes in net debt, EBITDA, and underlying revenue. Based on this assessment, a combined reduction in EBITDA of 40% and an increase in net debt of 45% would still allow the Group to operate within its financial covenants. The Directors do not consider either of these scenarios to be plausible given the diversity of the Group's end-markets and its broad manufacturing base.

The Board and Executive Committee have regular reporting and review processes in place in order to closely monitor the ongoing operational and financial performance of the Group. As part of the ongoing risk management process, principal and emerging risks are identified and reviewed on a regular basis. In addition, the Directors have assessed the risk of climate change and do not consider that it will impact the Group's ability to operate as a going concern for the period under consideration.

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 this Annual Report and Accounts. 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 text, and by a footnote where they appear in tables in this Report. Further details can be found in the Definitions and reconciliations of non-GAAP measures to GAAP measures section on pages 57 to 59.

Newly adopted standards

There were no new standards applicable to the Group in the year.

Accounting developments and changes

New accounting standards in issue but not yet effective

New standards and interpretations that are in issue but not yet effective are listed below:

- IFRS 17 Insurance Contracts
- Amendments to IFRS 17 – Initial Application of IFRS 17 and IFRS 9 – Comparative Information
- Amendments to IAS 1 – Classification of Liabilities as Current or Non-current
- Amendments to IAS 1 and IFRS Practice Statement 2 – Disclosure of Accounting Policies
- Amendments to IAS 8 – Definition of Accounting Estimates
- Amendments to IAS 12 – Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The adoption of the above standards and interpretations is not expected to lead to any material changes to the Group's accounting policies or have any other material impact on the financial position or performance of the Group.

There are no other upcoming accounting standards or amendments that are applicable to the Group.

2. Acquisitions and disposals

2022

Disposal of Sukhoy Log

On 29 July 2022, the Group completed the sale of its investment in the joint venture Sukhoy Log, based in Russia. The investment had a carrying value of £nil having been fully impaired in previous years. The Group received consideration of £0.6 million and incurred transaction costs of £0.2 million, resulting in a net consideration of £0.4 million. A profit on disposal of £0.4 million was recognised in specific adjusting items within the consolidated income statement, see also note 6.

There was no income received from Sukhoy Log in the year ended 31 December 2022 (2021: £nil). The disposal group was included in the Thermal Ceramics operating segment.

2021

Disposal of Latrobe

On 15 January 2021, the Group completed the sale of assets associated with the Technical Ceramics business, based in Latrobe, US. The transaction was structured as a sale of the business and related assets for total consideration of £0.6 million. The disposal resulted in a loss of £0.1 million which was recognised in specific adjusting items within the consolidated income statement, see also note 6.

The loss on disposal was as follows:

	31 December 2021 £m
Trading net assets of disposal group	0.6
Goodwill of disposal group	0.1
Cumulative foreign exchange gains and losses recycled on disposal	(0.1)
Total net assets	0.6
Consideration	0.6
Transaction costs associated with the disposal	(0.1)
Loss on disposal	(0.1)

In 2021, Latrobe generated an operating profit of £nil on revenues of £0.1 million in the period prior to the disposal.

The disposal group was included in the Technical Ceramics operating segment.

Notes to the consolidated financial statements continued

2. Acquisitions and disposals (continued)

Disposal of Jemmttec

On 28 April 2021, the Group completed the sale of its investment in associate, Jemmttec Limited ('Jemmttec'). The Group's share of the total consideration was £14.2 million, comprising £12.2 million of initial consideration, on a cash-free, debt-free basis, a further consideration of £0.2 million for working capital adjustments and £1.8 million of contingent consideration that had been received in full in 2021. The disposal resulted in a gain of £7.2 million which was recognised in specific adjusting items within the consolidated income statement, see also note 6.

The gain on disposal was as follows:

	31 December 2021 £m
Investment carrying value	7.0
Total consideration	14.2
Gain on disposal	7.2

In 2021, the Group's share of profit in associate (net of income tax) was £0.4 million in the period prior to the disposal.

Acquisition of Delamag

On 1 March 2021, Morgan Technical Ceramics Limited wholly purchased the business and assets of the 'Delamag' business of sourcing raw materials for the processing and manufacture of magnesium oxide from Delamin Limited. The acquisition comprised primarily all rights to the 'Delamag' business name, technical knowledge, intellectual property and business contracts.

The assets acquired and the consideration was as follows:

	31 December 2021 £m
Identifiable intangible assets acquired	1.8
Goodwill	0.1
Total consideration	1.9

The intangible assets recognised represent customer listings, trademarks and intellectual property rights.

The acquisition was a vertical integration and preserves existing income, as such the incremental profit from acquisition was immaterial in 2022 and 2021. The Delamag acquisition forms part of the Seals and Bearings operating segment.

3. Segment reporting

The Group's results are reported as five separate global business units, which have been identified as the Group's reportable operating segments, as detailed on page 7. 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, 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		Electrical Carbon		Seals and Bearings	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Continuing operations								
Revenue from external customers	421.4	364.7	57.8	47.7	188.7	164.9	148.5	135.9
Segment adjusted operating profit¹	48.7	42.0	7.8	6.3	39.7	32.8	19.0	22.9
Corporate costs ²								
Group adjusted operating profit¹								
Amortisation of intangible assets	(1.6)	(2.1)	(0.3)	(0.6)	(0.7)	(0.9)	(0.8)	(0.9)
Operating profit before specific adjusting items	47.1	39.9	7.5	5.7	39.0	31.9	18.2	22.0
Specific adjusting items included in operating profit/(loss) ³	(2.8)	(2.1)	–	0.3	0.1	(6.3)	(1.6)	–
Operating profit/(loss)	44.3	37.8	7.5	6.0	39.1	25.6	16.6	22.0
Finance income								
Finance expense								
Share of profit of associate (net of income tax)								
Profit before taxation								
Segment assets	361.2	319.9	44.0	41.8	159.5	137.6	115.8	107.5
Segment liabilities	93.2	88.9	8.9	8.4	32.6	30.6	26.5	23.6
Segment capital expenditure	16.8	8.0	3.5	2.2	8.7	5.9	9.7	7.6
Segment depreciation – property, plant and equipment	11.2	10.2	2.1	2.0	5.3	5.5	6.0	6.4
Segment depreciation – right-of-use assets	3.2	3.5	0.3	0.3	1.0	1.1	0.6	0.6
Segment impairment of non-financial assets	3.2	0.7	–	–	–	5.7	1.6	–

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206, reconciliations of the statutory results to the adjusted measures can be found on pages 57–59.

2. Corporate costs consist of central head office costs.

3. Details of specific adjusting items from continuing operations are given in note 6 to the consolidated financial statements.

Notes to the consolidated financial statements continued

3. Segment reporting (continued)

	Technical Ceramics		Segment totals		Corporate costs		Group	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Continuing operations								
Revenue from external customers	295.7	237.3	1,112.1	950.5	–	–	1,112.1	950.5
Segment adjusted operating profit ¹	41.7	26.4	156.9	130.1	–	–	156.9	130.1
Corporate costs ²					(5.9)	(5.9)	(5.9)	(5.9)
Group adjusted operating profit ¹							151.0	124.5
Amortisation of intangible assets	(1.3)	(1.5)	(4.7)	(6.0)	–	–	(4.7)	(6.0)
Operating profit before specific adjusting items	40.4	24.9	152.2	124.4	(5.9)	(5.9)	146.3	118.5
Specific adjusting items included in operating profit ³	(1.2)	(6.0)	(5.5)	(14.1)	–	8.7	(5.5)	(5.4)
Operating profit/(loss)	39.2	18.9	146.7	110.3	(5.9)	2.8	140.8	113.1
Finance income							1.6	0.8
Finance expense							(10.8)	(10.0)
Share of profit of associate (net of income tax)							–	0.4
Profit before taxation							131.6	104.3
Segment assets	199.8	156.5	880.3	763.3	140.0	149.2	1,020.3	912.5
Segment liabilities	86.3	73.9	247.5	225.4	343.2	337.5	590.7	562.9
Segment capital expenditure	19.3	7.9	58.0	31.6	–	–	58.0	31.6
Segment depreciation - property, plant and equipment	5.7	6.0	30.3	30.1	–	–	30.3	30.1
Segment depreciation - right-of-use assets	2.7	2.4	7.8	7.9	–	–	7.8	7.9
Segment impairment of non-financial assets	1.7	6.0	6.5	12.4	–	–	6.5	12.4

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206, reconciliations of the statutory results to the adjusted measures can be found on pages 57 to 59.

2. Corporate costs consist of central head office costs.

3. Details of specific adjusting items from continuing operations are given in note 6 to the consolidated financial statements.

Revenue from external customers and non-current assets by geography

	Revenue from external customers		Non-current assets (excluding tax and financial instruments)	
	2022 £m	2021 £m	2022 £m	2021 £m
Continuing operations				
US	405.6	336.4	212.6	181.3
China	121.4	114.4	45.5	29.1
Germany	85.1	68.7	38.0	34.4
UK (the Group's country of domicile)	53.2	38.5	101.1	101.6
Other Asia, Australasia, Middle East and Africa	194.1	174.6	61.2	61.4
Other Europe	182.0	157.4	37.5	36.3
Other North America	39.1	33.4	2.1	6.1
South America	31.6	27.1	11.0	15.8
	1,112.1	950.5	509.0	466.0

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 more than 5% of revenue.

3. Segment reporting (continued)

Revenue from external customers by end-market

	2022 £m	2021 £m
Continuing operations		
Semiconductors	91.3	62.1
Healthcare	74.7	68.2
Clean energy and clean transportation	51.7	53.0
Faster growing markets	217.7	183.3
Industrial	344.5	296.4
Conventional transportation	179.9	142.6
Metals	159.9	137.4
Petrochemical and chemical	112.6	99.4
Security and defence	65.2	60.9
Conventional energy	32.3	30.5
Core markets	894.4	767.7
	1,112.1	950.5

Intercompany sales to other segments

	Thermal Ceramics		Molten Metal Systems		Electrical Carbon		Seals and Bearings		Technical Ceramics		Segment totals	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Intercompany sales to other segments	0.4	0.8	0.1	0.1	0.5	0.2	0.7	1.0	1.0	0.5	2.7	2.6

4. Operating costs before specific adjusting items

	Note	2022 £m	2021 £m
Continuing operations			
Change in stocks of finished goods and work in progress		(4.5)	(3.1)
Raw materials and consumables		308.6	255.9
Other operating costs		176.4	141.5
		480.5	394.3
Employee costs:			
Wages and salaries		292.3	259.6
Equity-settled share-based payment expense	23	5.1	4.5
Social security costs and other benefits		62.1	54.4
Pension costs	22	16.2	15.1
		375.7	333.6
Depreciation – property, plant and equipment	11	30.3	30.1
Depreciation – right-of-use assets	12	7.8	7.9
		38.1	38.0
Short-term leases and leasing of low value assets:			
Plant and equipment		0.1	-
Other leases		0.4	0.3
		0.5	0.3
Other operating charges and income:			
Net foreign exchange gains		(2.0)	(0.1)
Net other operating charges		68.3	59.9
		66.3	59.8
Total operating costs before specific adjusting items and amortisation of intangible assets		961.1	826.0
Amortisation of intangible assets	13	4.7	6.0
Total operating costs before specific adjusting items		965.8	832.0

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 above:

1. Research and development

The Group recognised £31.6 million in expense in respect of research and development (2021: £28.5 million). These costs are included in employee costs and other operating costs 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, which are included in net other operating costs, for the year ended 31 December 2022 is set out below. Additional audit fees of approximately £1.2 million are expected to be incurred for the audit of the Company's annual accounts and the audits of the subsidiaries of the Company in relation to the cyber incident which occurred subsequent to the year end.

	2022 £m	2021 £m
Fees payable to the Company's auditor for the audit of the Company's annual accounts:		
in respect of the current year	0.8	0.7
in respect of the prior year	–	0.1
Fees payable to the Company's auditor and its associates for other services:		
the auditing of accounts of any subsidiaries of the Company	2.1	1.9
audit-related assurance services	0.1	0.1
	3.0	2.8

5. Staff numbers

The monthly average number of persons employed by the Group (including Directors) during the year, analysed by reporting segment, was as follows:

	Number of employees	
	2022	2021
Reportable operating segments		
Thermal Ceramics	2,430	2,410
Molten Metal Systems	430	420
Electrical Carbon	1,390	1,340
Seals and Bearings	1,370	1,270
Technical Ceramics	2,560	2,130
Segment total	8,180	7,570
Corporate (UK and North America)	50	50
Group	8,230	7,620

Average employee numbers have been rounded to the nearest 10.

6. Specific adjusting items

	Note	2022 £m	2021 £m
Continuing operations			
Impairment of non-financial assets		(6.5)	(12.4)
Restructuring credit		0.6	0.1
Net profit on disposal of business	2	0.4	7.1
Business closure and exit costs		–	(0.2)
Total specific adjusting items before income tax		(5.5)	(5.4)
Income tax credit from specific adjusting items		1.1	1.5
Total specific adjusting items after income tax		(4.4)	(3.9)

Specific adjusting items in relation to discontinued operations are disclosed in note 9.

6. Specific adjusting items (continued)

2022

Impairment of non-financial assets

Seals and Bearings, Asia

An impairment charge of £0.6 million has been recognised relating to assets purchased to support a customer contract which did not materialise.

A further impairment charge of £1.0 million has been recognised after reassessing the value in use of property, plant and equipment in a business in Asia which is taking longer than anticipated to generate revenues. This represented a partial impairment of the assets; the carrying value of the assets following this impairment was £5.2 million. The calculation of value in use was performed as at December 2022. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 12.9% was used to determine the value in use.

Thermal Ceramics, Europe

An impairment charge of £1.2 million has been recognised following a fire in December which destroyed a warehouse and inventory. The assets have subsequently been written off.

An impairment charge of £1.1 million has been recognised after reassessing the value in use of property, plant and equipment in a business in France which is experiencing limited growth and under-utilisation of key assets. This represented a partial impairment of the assets; the carrying value of the assets following this impairment was £0.3 million. The calculation of value in use was performed as at December 2022. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 13.7% was used to determine the value in use.

Thermal Ceramics, South America

An impairment charge of £0.9 million has been recognised in relation to assets associated with a closed manufacturing line.

Technical Ceramics, Asia

An impairment charge of £1.7 million was recognised after reassessing the value in use of property, plant and equipment in a business in Asia which is taking longer than anticipated to generate revenues. This represented a partial impairment of the assets; the carrying value of the assets following this impairment was £3.2 million. The calculation of value in use was performed as at December 2022. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 12.9% was used to determine the value in use.

Review of cumulative impairment of non-financial assets

Impairment charges of £52.6 million for non-financial assets which the business continues to use have been recorded during the current and previous years (Technical Ceramics, Asia £7.7 million, Technical Ceramics, ceramic cores £28.8 million, Thermal Ceramics £15.1 million and Seals and Bearings, Asia £1.0 million). These impaired amounts could be reversed if the related businesses were to outperform significantly against their budget. A sensitivity analysis was carried out using reasonably possible changes to the key assumptions in assessing the value in use of these non-financial assets. This did not result in a material reversal of the impaired amounts.

Restructuring costs

A credit of £0.6 million has been recognised in the current year representing a release of restructuring provisions booked in previous years in relation to the Group's restructuring programme. Whilst this programme was completed in 2021, we retain a restructuring provision of £10.5 million for the Group's obligations at the balance sheet date (2021: £11.8 million). This provision includes remaining lease exit costs and multi-employer pension obligations for two sites which were closed during the year ended 31 December 2021. The cash outflows relating to the pension obligations may continue for up to 19 years, subject to any settlement being reached in advance of that date. Cash outflows in relation to the lease may continue for the next four years. Refer to note 24 for further information.

Net profit on disposal of business

The Group disposed of its investment in the joint venture Sukhoy Log, based in Russia, during the year. This disposal generated a net profit of £0.4 million. Refer to note 2 for further information.

Notes to the consolidated financial statements continued

6. Specific adjusting items (continued)

2021

Impairment of non-financial assets

Technical Ceramics, Asia

An impairment charge of £6.0 million was recognised after reassessing the value in use of property, plant and equipment in a business in Asia which is taking longer than anticipated to generate revenues. This represented a partial impairment of the assets; the carrying value of the assets following this impairment was £5.4 million. The calculation of value in use was performed as at December 2021. A long-term growth rate of 1.0% was used for years beyond the five-year forecast period and in calculating the terminal value. A pre-tax discount rate of 11.5% was used to determine the value in use.

Electrical Carbon, Europe and North America

Impairment charges of £4.8 million and £1.0 million were recognised after assessing the viability of two development assets in Europe and North America, respectively. The European asset was not deemed viable as we were unable to commission it safely and the American asset was not deemed to be commercially viable.

Thermal Ceramics, North America

An impairment charge of £0.6 million was recognised relating to assets associated with closed manufacturing lines within Thermal Ceramics.

Restructuring costs

A net credit of £0.1 million was recognised in the year ended 31 December 2021 representing £2.1 million of further redundancy and closure costs related to the Group's restructuring programme, offset by a £2.2 million release of restructuring provisions booked during 2020 in relation to this programme.

Net profit on disposal of business

The Group disposed of its 35% shareholding in Jemmtec Limited and the business assets associated with the Latrobe business during the year ended 31 December 2021. These disposals generated a profit of £7.2 million and a loss of £0.1 million, respectively. Refer to note 2 for further information.

Business closure and exit costs

A £0.2 million charge was recognised relating to the liquidation of businesses in Europe and Asia.

7. Finance income and expense

Continuing operations	2022 £m	2021 £m
Recognised in profit or loss		
Interest on bank balances and cash deposits	1.6	0.8
Finance income	1.6	0.8
Interest expense on borrowings and overdrafts	(7.0)	(6.1)
Interest expense on lease liabilities	(2.4)	(2.3)
Net interest on IAS 19 defined benefit pension obligations	(1.4)	(1.6)
Finance expense	(10.8)	(10.0)
Net financing costs recognised in profit or loss	(9.2)	(9.2)

No finance income or expense related to discontinued operations in either the current or preceding year.

8. Taxation – income tax expense

	2022 £m	2021 £m
Continuing operations		
Recognised in profit or loss		
Current tax		
Current year	36.5	30.7
Adjustments for prior years	0.5	0.4
	37.0	31.1
Deferred tax		
Current year	(0.4)	(2.3)
Adjustments for prior years	(0.6)	(0.6)
	(1.0)	(2.9)
Total income tax expense recognised in profit or loss	36.0	28.2
Recognised in other comprehensive income		
Tax effect on components of other comprehensive income:		
Deferred tax associated with defined benefit schemes	3.4	0.6
Deferred tax associated with foreign exchange differences	–	0.8
Total tax recognised in other comprehensive income	3.4	1.4

There was no deferred tax associated with share schemes recognised in other comprehensive income (2021: none).

Reconciliation of effective tax rate

	2022 £m	2022 %	2021 £m	2021 %
Profit before tax	131.6		104.3	
Income tax charge using the domestic corporation tax rate	25.0	19.0	19.8	19.0
Effect of different tax rates in other jurisdictions	7.5	5.7	5.8	5.5
Local taxes including withholding tax suffered	3.4	2.6	2.6	2.5
Permanent differences	0.2	0.2	0.4	0.4
Movements related to unrecognised temporary differences	(0.1)	(0.1)	(0.2)	(0.2)
Adjustments in respect of prior years	–	–	(0.2)	(0.2)
Statutory effective rate of tax	36.0	27.4	28.2	27.0

The effective rate of tax before specific adjusting items is 27.0% (2021: 27.1%).

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.

Notes to the consolidated financial statements continued

9. Discontinued operations

The Group disposed of its Composites and Defence Systems business on 20 November 2018. The business represented a separate reportable segment and therefore, in accordance with IFRS 5 Non-current Assets Held for Sale and Discontinued Operations, the disposal group was classified as discontinued.

The results from discontinued operations, which have been disclosed in the consolidated income statement, are set out below:

	Note	31 December 2022			31 December 2021		
		Results before specific adjusting items £m	Specific adjusting items £m	Total £m	Results before specific adjusting items £m	Specific adjusting items £m	Total £m
Revenue		–	0.7	0.7		3.3	3.3
Operating income		–	0.4	0.4		2.4	2.4
Profit before taxation		–	1.1	1.1		5.7	5.7
Income tax expense		–	–	–	–	–	–
Profit from discontinued operations		–	1.1	1.1	–	5.7	5.7
Basic earnings per share from discontinued operations	10			0.4p			2.0p
Diluted earnings per share from discontinued operations	10			0.4p			2.0p

In 2022, a gain of £1.1 million was recognised following the receipt of cash from a long-term contract and disposal of an investment in accordance with the terms of the disposal agreement.

In 2021, £3.3 million of the specific adjusting items balance related to the settlement of certain long-term contracts. A further £2.4 million related to the reassessment of certain provisions associated with the disposal of the Composites and Defence Systems business.

There is no income tax expense in relation to the discontinued operations in either the current or preceding year.

Cash flows from discontinued operations are set out below:

	31 December 2022 £m	31 December 2021 £m
Net cash generated from operating activities	1.1	3.3
Net cash generated from investing activities	–	2.0
Net cash used in financing activities	–	–
	1.1	5.3

10. Earnings per share

	31 December 2022			31 December 2021		
	Earnings £m	Basic earnings per share pence	Diluted earnings per share pence	Earnings £m	Basic earnings per share pence	Diluted earnings per share pence
Profit for the year attributable to shareholders of the Company	88.0	31.0p	30.7p	73.8	25.9p	25.7p
Profit from discontinued operations	(1.1)	(0.4)p	(0.4)p	(5.7)	(2.0)p	(2.0)p
Profit from continuing operations	86.9	30.6p	30.3p	68.1	23.9p	23.7p
Specific adjusting items	5.5	1.9p	1.9p	5.4	1.9p	1.9p
Amortisation of intangible assets	4.7	1.7p	1.6p	6.0	2.1p	2.1p
Tax effect of the above ¹	(1.1)	(0.4)p	(0.4)p	(1.5)	(0.5)p	(0.5)p
Non-controlling interests' share of the above adjustments	–	–	–	(0.5)	(0.2)p	(0.2)p
Adjusted profit for the year from continuing operations as used in adjusted earnings per share²	96.0	33.8p	33.5p	77.5	27.2p	27.0p

1. The tax effect of the amortisation of intangible assets was £nil (2021: £nil).

2. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206, reconciliations of the statutory results to the adjusted measures can be found on pages 57–59.

Number of shares (millions)	2022	2021
Weighted average number of Ordinary shares for the purposes of basic earnings per share¹	284.2	284.6
Effect of dilutive potential Ordinary shares:		
Share options	2.6	2.4
Weighted average number of Ordinary shares for the purposes of diluted earnings per share	286.8	287.0

1. 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.

Notes to the consolidated financial statements continued

II. Property, plant and equipment

	Note	Land and buildings £m	Plant, equipment and fixtures £m	Total £m
Cost				
Balance at 1 January 2021		215.2	678.2	893.4
Additions		2.6	27.9	30.5
Disposals		(16.7)	(21.1)	(37.8)
Sale of business	2	(0.8)	(3.5)	(4.3)
Transfers between categories		1.2	(1.2)	–
Effect of movement in foreign exchange		(1.7)	(3.1)	(4.8)
Balance at 31 December 2021		199.8	677.2	877.0
Balance at 1 January 2022		199.8	677.2	877.0
Additions		3.8	49.7	53.5
Disposals		(1.3)	(9.1)	(10.4)
Transfers between categories		0.3	(0.3)	–
Effect of movement in foreign exchange		16.6	52.7	69.3
Balance at 31 December 2022		219.2	770.2	989.4
Depreciation and impairment losses				
Balance at 1 January 2021		109.7	516.1	625.8
Depreciation charge for the year		5.3	24.8	30.1
Impairment losses	6	–	12.3	12.3
Disposals		(11.6)	(20.1)	(31.7)
Sale of business	2	(0.6)	(3.5)	(4.1)
Transfers between categories		0.3	(0.3)	–
Effect of movement in foreign exchange		(0.1)	(3.4)	(3.5)
Balance at 31 December 2021		103.0	525.9	628.9
Balance at 1 January 2022		103.0	525.9	628.9
Depreciation charge for the year		5.0	25.3	30.3
Impairment losses	6	2.0	2.6	4.6
Disposals		(0.7)	(8.4)	(9.1)
Transfers between categories		(0.4)	0.4	–
Effect of movement in foreign exchange		8.8	42.7	51.5
Balance at 31 December 2022		117.7	588.5	706.2
Carrying amounts				
At 1 January 2021		105.5	162.1	267.6
At 31 December 2021		96.8	151.3	248.1
At 31 December 2022		101.5	181.7	283.2

In 2022, no assets were pledged as security for liabilities (2021: none). Profit on sale of property, plant and equipment presented in the cash flow includes £nil (2021: £nil) of insurance proceeds for replacement of assets.

12. Leases

The reconciliation in the movement of the Group's right-of-use assets is set out in the table below:

	Land and buildings £m	Plant and equipment £m	Total £m
Balance at 1 January 2021	29.2	6.3	35.5
Additions	2.7	1.5	4.2
Remeasurements	0.6	0.1	0.7
Depreciation charge for the year	(4.7)	(3.2)	(7.9)
Effect of movement in foreign exchange	(0.3)	(0.3)	(0.6)
Balance at 31 December 2021	27.5	4.4	31.9
Balance at 1 January 2022	27.5	4.4	31.9
Additions	1.2	1.8	3.0
Remeasurements	3.1	0.6	3.7
Depreciation charge for the year	(5.1)	(2.7)	(7.8)
Effect of movement in foreign exchange	2.3	0.5	2.8
Balance at 31 December 2022	29.0	4.6	33.6

The weighted average lease term is 11.6 years for land and buildings and 3.3 years for plant and equipment (2021: 12.2 years and 3.5 years respectively). The maturity analysis of lease liabilities is presented in note 20.

Amounts recognised in the consolidated income statement in respect of leasing arrangements are set out in the table below:

	2022 £m	2021 £m
Depreciation expense on right-of-use assets	(7.8)	(7.9)
Interest expense on lease liabilities	(2.4)	(2.3)
Expense relating to short-term leases and leasing of low value assets	(0.5)	(0.3)
Income from leasing owned assets	–	0.2
	(10.7)	(10.3)

The total cash flows from leasing activities in the year ended 31 December 2022 was £11.9 million (2021: £11.0 million) as set out in the table below:

	2022 £m	2021 £m
Payment of lease liabilities	(9.0)	(8.6)
Interest expense on lease liabilities	(2.4)	(2.3)
Expense relating to short-term leases and leasing of low value assets	(0.5)	(0.3)
Income from leasing owned assets	–	0.2
	(11.9)	(11.0)

At 31 December 2022, the Group is committed to future payments of £0.6 million (2021: £0.6 million) for short-term leases and leasing of low value assets.

At 31 December 2022, future cash flows in respect of leases which the Group had entered into but which had not yet commenced was £nil (2021: £0.2 million).

The total of future minimum lease income under non-cancellable leases, where the Group is a lessor is £nil (2021: £nil).

Notes to the consolidated financial statements continued

13. Intangible assets

	Note	Goodwill £m	Customer relationships £m	Technology and trademarks £m	Capitalised development costs £m	Computer software £m	Total £m
Cost							
Balance at 1 January 2021		173.2	56.2	3.6	0.7	34.5	268.2
Acquisition of businesses		0.1	1.1	0.7		-	1.9
Additions (externally purchased)		-	-	-	-	2.0	2.0
Disposal of businesses		(0.1)	-	-	-	-	(0.1)
Disposals		-	-	-	-	(1.9)	(1.9)
Effect of movement in foreign exchange		(0.3)	0.3	(0.2)	-	0.2	
Balance at 31 December 2021		172.9	57.6	4.1	0.7	34.8	270.1
Balance at 1 January 2022		172.9	57.6	4.1	0.7	34.8	270.1
Additions (externally purchased)		-	-	-	-	1.2	1.2
Disposals		-	-	-	-	(0.1)	(0.1)
Effect of movement in foreign exchange		9.0	6.3	0.2	0.1	1.9	17.5
Balance at 31 December 2022		181.9	63.9	4.3	0.8	37.8	288.7
Amortisation and impairment losses							
Balance at 1 January 2021		-	54.8	3.6	0.7	23.7	82.8
Amortisation charge for the year		-	1.0	0.1	-	4.9	6.0
Disposals		-	-	-	-	(1.9)	(1.9)
Effects of movement in foreign exchange		-	0.3	(0.2)	-	-	0.1
Balance at 31 December 2021		-	56.1	3.5	0.7	26.7	87.0
Balance at 1 January 2022		-	56.1	3.5	0.7	26.7	87.0
Amortisation charge for the year		-	0.7	0.1	-	3.9	4.7
Disposals		-	-	-	-	(0.1)	(0.1)
Effects of movement in foreign exchange		-	6.3	0.2	0.1	1.5	8.1
Balance at 31 December 2022		-	63.1	3.8	0.8	32.0	99.7
Carrying amounts							
At 1 January 2021		173.2	1.4	-	-	10.8	185.4
At 31 December 2021		172.9	1.5	0.6	-	8.1	183.1
At 31 December 2022		181.9	0.8	0.5	-	5.8	189.0

13. Intangible assets (continued)

Impairment test for cash-generating units or groups of 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 or groups of cash-generating units that are expected to benefit from the synergies of the business combination that gave rise to the goodwill. Goodwill impairment testing is performed at the operating segment level as defined by IFRS 8, as this is the lowest level at which goodwill is monitored.

Goodwill is attributed to each operating segment as follows:

	2022 £m	2021 £m
Thermal Ceramics	88.8	84.5
Molten Metal Systems	9.4	9.0
Electrical Carbon	30.7	29.3
Seals and Bearings	15.8	14.9
Technical Ceramics	37.1	35.2
	181.8	172.9

Each operating segment is assessed for impairment annually and whenever there is an indication of impairment.

The carrying value of goodwill has been assessed with reference to its value in use, reflecting the projected discounted cash flows of each operating segment to which goodwill has been allocated. The key assumptions used in determining value in use relate to short- and long-term growth rates and discount rates.

The cash flow projections in year one are based on the most recent Board approved budget. Cash flow projections for years two to five are based on the most recent Board approved strategic plan. 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. External data sources have been considered as to the strength and recovery of the Group's end-markets in building an expectation of the future cash flows of each operating segment.

In 2022, a 1.0% growth rate (2021: 1.0%) has been used for years beyond 2027 and to calculate a terminal value. Management has assessed these growth rates, including the terminal growth rate as reasonable for each operating segment.

In 2022, the Group has used the following pre-tax discount rates for calculating the value in use of each of the operating segments: Thermal Ceramics: 13.8% (2021: 13.2%), Molten Metal Systems: 15.6% (2021: 12.9%), Electrical Carbon: 14.6% (2021: 12.3%), Seals and Bearings: 14.0% (2021: 11.2%), Technical Ceramics: 14.1% (2021: 11.1%).

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 operating segments in any one of the following three circumstances, which are considered reasonably possible changes:

- If the pre-tax discount rate was increased to 18%.
- If no growth was assumed for years two to five and in the calculation of terminal value.
- If the cash flow projections of all businesses were reduced by 25%.

Notes to the consolidated financial statements continued

14. Recognised deferred tax assets and liabilities

Deferred tax assets and liabilities are attributable to the following.

	Assets 2022 £m	Assets 2021 £m	Liabilities 2022 £m	Liabilities 2021 £m	Net 2022 £m	Net 2021 £m
Property, plant and equipment	–	–	(12.7)	(12.3)	(12.7)	(12.3)
Right-of-use assets and lease liabilities	3.6	3.9	–	–	3.6	3.9
Intangible assets	–	–	(0.4)	(0.6)	(0.4)	(0.6)
Employee benefits	10.2	13.1	–	–	10.2	13.1
Provisions	11.4	10.8	–	–	11.4	10.8
Tax value of loss carried forward recognised	1.7	1.0	–	–	1.7	1.0
Other items	–	–	(0.5)	(1.2)	(0.5)	(1.2)
Offset	(11.6)	(12.9)	11.6	12.9	–	–
	15.3	15.9	(2.0)	(1.2)	13.3	14.7

Deferred tax assets and liabilities are offset when there is a legally enforceable right to do so.

Unrecognised deferred tax assets

Deferred tax assets have not been recognised in respect of the following items:

	2022 £m	2021 £m
UK pension deficit	–	51.8
Tax losses	107.8	110.9
Capital losses	43.4	39.9
Other deductible temporary differences	129.7	75.1
	280.9	277.7

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. Although the Group as a whole is profitable, the unrecognised losses relate to entities where it is not probable that there will be future taxable profits against which these losses can be utilised.

Movements in temporary differences during the year

	Recognised in profit or loss £m	Recognised directly in equity £m	31 December 2021 £m	Recognised in profit or loss £m	Recognised directly in equity £m	31 December 2022 £m
Property, plant and equipment	0.8	–	(12.3)	(0.4)	–	(12.7)
Right-of-use assets and lease liabilities	–	–	3.9	(0.3)	–	3.6
Intangible assets	0.6	–	(0.6)	0.2	–	(0.4)
Employee benefits	0.5	(0.6)	13.1	0.5	(3.4)	10.2
Provisions	(0.6)	–	10.8	0.6	–	11.4
Tax value of loss carried forward recognised	0.6	–	1.0	0.7	–	1.7
Others	1.0	(1.5)	(1.2)	(0.3)	1.0	(0.5)
	2.9	(2.1)	14.7	1.0	(2.4)	13.3

Deferred income tax of £4.0 million (2021: £3.8 million) is provided on the potential unremitted earnings of overseas subsidiary undertakings. Where the remittance of dividends is not anticipated deferred tax is not currently recognised or disclosed as it is considered immaterial.

15. Inventories

	2022 £m	2021 £m
Raw materials and consumables	55.5	39.9
Work in progress	53.3	40.1
Finished goods	65.4	60.7
	174.2	140.7

The Group holds consignment inventory amounting to £28.8 million (2021: £25.2 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 are invoiced only when the material is required.

In 2022, provisions of £5.0 million were made against inventories and recognised in operating costs (2021: £3.7 million).

16. Trade and other receivables

	2022 £m	2021 £m
Non-current		
Prepayments	0.2	0.4
Other receivables	3.0	2.5
Non-trade receivables	3.2	2.9
Current		
Gross trade receivables	179.7	150.1
Expected credit losses	(9.1)	(10.9)
Net trade receivables	170.6	139.2
Contract assets	1.0	0.6
Prepayments	14.8	9.2
Other non-trade receivables	16.1	12.4
	202.5	161.4

The Group's exposure to credit and currency risks related to trade and other receivables is disclosed in note 21.

Contract assets relate to the Group's right to consideration for project-based business which was completed but not billed at the end of the year.

Notes to the consolidated financial statements continued

17. Cash and cash equivalents

	2022 £m	2021 £m
Bank balances	105.8	101.2
Cash deposits	11.9	26.1
Cash and cash equivalents	117.7	127.3

In 2022, the Group had restricted cash of £4.0 million (2021: £1.5 million) as a result of exchange controls in Argentina.

Reconciliation of cash and cash equivalents to net debt¹

	2022 £m	2021 restated ² £m
Opening borrowings and lease liabilities	(223.8)	(303.4)
Increase in borrowings	(113.3)	(27.3)
Reduction and repayment of borrowings	39.0	99.6
Payment of lease liabilities	9.0	8.6
Total changes from cash flows	(65.3)	80.9
New leases and lease remeasurement	(6.7)	(4.4)
Effect of movements in foreign exchange	(22.3)	3.1
Closing borrowings and lease liabilities	(318.1)	(223.8)
Cash and cash equivalents	117.7	127.3
Closing net debt¹	(200.4)	(96.5)

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206. reconciliations of the statutory results to the adjusted measures can be found on pages 57-59.

2. Comparative information has been restated to present the increase and reduction in borrowings separately.

The table below details changes in the Group's liabilities arising from financing activities, including both cash and non-cash changes.

	Borrowings £m	Lease liabilities £m	Total financing liabilities £m	Cash and cash equivalents £m	Movement in net debt £m
At 1 January 2021	(248.8)	(54.6)	(303.4)	147.8	(155.6)
Cash outflow	–	–	–	(5.6)	(5.6)
Borrowings and lease liability cash flow	72.3	8.6	80.9	–	80.9
Net interest paid	–	–	–	(8.4)	(8.4)
Net cash inflow/(outflow)	72.3	8.6	80.9	(14.0)	66.9
Share purchases	–	–	–	(5.9)	(5.9)
New leases and lease remeasurement	–	(4.4)	(4.4)	–	(4.4)
Exchange and other movements	2.5	0.6	3.1	(0.6)	2.5
At 31 December 2021	(174.0)	(49.8)	(223.8)	127.3	(96.5)
At 1 January 2022	(174.0)	(49.8)	(223.8)	127.3	(96.5)
Cash outflow	–	–	–	(0.7)	(0.7)
Borrowings and lease liability cash flow	(74.3)	9.0	(65.3)	–	(65.3)
Net interest paid	–	–	–	(9.4)	(9.4)
Net cash inflow/(outflow)	(74.3)	9.0	(65.3)	(10.1)	(75.4)
Share purchases	–	–	–	(2.9)	(2.9)
New leases and lease remeasurement	–	(6.7)	(6.7)	–	(6.7)
Exchange and other movements	(17.9)	(4.4)	(22.3)	3.4	(18.9)
At 31 December 2022	(266.2)	(51.9)	(318.1)	117.7	(200.4)

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206. reconciliations of the statutory results to the adjusted measures can be found on pages 57-59.

18. Trade and other payables

	2022 £m	2021 £m
Non-current		
Accruals	0.6	0.2
Other tax and social security	–	0.1
Other payables	1.5	2.1
	2.1	2.4
Current		
Trade payables	78.6	61.8
Contract liabilities	8.9	12.2
Accruals	69.6	69.0
Other tax and social security	19.9	14.0
Other payables	18.0	20.2
	195.0	177.2

The Directors consider that the carrying amount of trade payables approximates to their fair value.

Contract liabilities relate to payments received from customers for project-based business in advance of the performance obligation being satisfied. All of the £8.9 million of contract liabilities as at 31 December 2022 are expected to be recognised as revenue in 2023. Contract liabilities outstanding as at 31 December 2021 of £12.2 million were recognised as revenue in 2022.

Included in trade payables are amounts due where extended payment terms have been agreed with the supplier using a supplier financing facility. The total amount outstanding on such extended payment terms at 31 December 2022 was £0.3 million (2021: £0.2 million).

19. Capital and reserves

Translation reserve

The translation reserve comprises all foreign exchange differences arising from the translation of the financial statements of foreign operations.

Hedging reserve

The cash flow hedge reserve represents the cumulative amount of gains and losses on hedging instruments deemed effective in cash flow hedges. The cumulative deferred gain or loss on the hedging instrument is recognised in profit or loss only when the hedged transaction impacts the profit or loss, or is included directly in the initial cost or other carrying amount of the hedged non-financial items (basis adjustment).

	2022 £m	2021 £m
Balance at 1 January	(0.1)	0.4
Loss arising on changes in fair value of hedging instruments during the period	(0.2)	(0.1)
Gain/(loss) reclassified to profit or loss	0.1	(0.4)
Balance at 31 December	(0.2)	(0.1)

Fair value reserve

The fair value reserve includes the cumulative net change in the fair value of FVOCI 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.

Retained earnings

The Company has acquired its own shares to satisfy the requirements of the various share option incentive schemes. At 31 December 2022, 1,173,686 shares (2021: 1,360,098) were held by The Morgan General Employee Benefit Trust ('the Trust') and are treated as a deduction from equity. No treasury shares were held by the Company (2021: none). All rights conferred by those shares are suspended until they are reissued.

Notes to the consolidated financial statements continued

19. Capital and reserves (continued)

A summary of the movements in own shares held by the Trust is set out in the table below:

	2022		2021	
	Shares	Cost £m	Shares	Cost £m
As at 1 January	1,360,098	5.0	841,880	2.1
New shares purchased	1,102,704	2.9	1,600,000	5.9
Exercise of share options	(1,289,116)	(4.8)	(1,081,782)	(3.0)
As at 31 December	1,173,686	3.1	1,360,098	5.0

Consideration received in respect of shares transferred to participants of employee share schemes was £0.5 million (2021: £0.3 million). The market value of shares held by the Trust at 31 December 2022 was £3.7 million (2021: £4.8 million).

Dividends

The following Ordinary dividends were declared and paid by the Company:

	Per share		Total	
	2022 pence	2021 pence	2022 £m	2021 £m
2020 final	–	3.5	–	10.0
2021 interim	–	3.2	–	9.1
2021 final	5.9	–	16.5	–
2022 interim	5.3	–	15.1	–
	11.2	6.7	31.6	19.1

1 The 2021 final dividend paid is shown net of £0.3 million returned from untraced shareholders, in accordance with the Company's Articles of Association.

After 31 December 2022 the following dividends were proposed by the Directors for 2022. These dividends have not been provided for and there are no income tax consequences. The proposed 2022 final dividend is based upon the number of shares outstanding at the balance sheet date.

	£m
6.7 pence per qualifying Ordinary share	19.1
	19.1

Called-up share capital

	2022 £m	2021 £m
Equity share capital		
Fully paid: 285,369,988 (2021: 285,369,988) issued Ordinary shares of 25 pence each	71.3	71.3
	71.3	71.3

Number of Ordinary shares in issue

	2022	2021
In issue at beginning and end of period	285,369,988	285,369,988

As at the date of this Report 285,369,988 Ordinary shares have been issued (2021: 285,369,988).

Details of options outstanding in respect of Ordinary shares are given in note 23.

Additionally the Company has authorised, issued and fully paid 437,281 (2021: 437,281) cumulative Preference shares classified as borrowings totalling £0.4 million (2021: £0.4 million). The Preference shares comprise 125,327 of 5.5% Cumulative First Preference shares of £1 each and 311,954 issued 5.0% Cumulative Second Preference shares of £1 each. The voting rights of these shares are set out below.

Dividends on the cumulative Preference shares are presented within finance costs in the Group's consolidated income statement.

Voting rights of shareholders

Ordinary shares

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.

19. Capital and reserves (continued)

Preference shares

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 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% per annum.

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% per annum.

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.

20. Borrowings and lease liabilities

This note provides information about the contractual terms of the Group's borrowings and lease liabilities which are measured at amortised cost.

For more information about the Group's exposure to interest rate and foreign currency risk, see note 21.

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. Where ancillary credit facilities are provided to operating subsidiaries, they are authorised and supervised by Group Treasury in accordance with the Group's Treasury Policy. 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.

	2022 £m	2021 £m
Non-current liabilities		
Senior Notes	154.8	173.6
Bank and other borrowings	74.9	—
Cumulative Preference shares	0.4	0.4
Lease liabilities	41.4	40.0
	271.5	214.0
Current liabilities		
Senior Notes	34.6	—
Bank and other borrowings	1.5	—
Lease liabilities	10.5	9.8
	46.6	9.8

In 2022, bank and other borrowings did not include any borrowings secured on the assets of the Group (2021: £nil).

As at 31 December 2022 the Group had available headroom under the bank syndication of £154.0 million (2021: £200.0 million).

Notes to the consolidated financial statements continued

21. Financial risk management

This note presents information about the Group's exposure to a variety of financial risks: credit risk, liquidity risk, market risk and foreign currency risk, and the Group's management of capital. Further quantitative disclosures are included throughout these consolidated financial statements.

Financial risk management and Treasury Policy

Group Treasury works within a framework of policies and procedures approved by the Board. It acts as a service centre for Morgan Advanced Materials plc's 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	
	2022	2021
	£m	£m
Trade and other receivables	170.6	139.2
Cash and cash equivalents	117.7	127.3
Derivatives	1.3	0.6
	289.6	267.1

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, have 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 a provision that represents its estimate of expected credit losses in respect of trade and other receivables and investments. At the point the amount is considered irrecoverable it is written off against the financial asset directly.

Movements on the provision for expected credit losses were as follows:

	2022	2021
	£m	£m
Balance at 1 January	(10.9)	(7.4)
Net remeasurement of loss allowance	(1.4)	(4.5)
Amounts written off	3.9	1.0
Effect of movement in foreign exchange	(0.7)	
Balance at 31 December	(9.1)	(10.9)

21. Financial risk management (continued)

There has been no change in the estimation techniques or significant assumptions made during the current reporting period in assessing the loss allowance for these financial assets. The loss allowance for trade receivables by ageing category is as follows:

	2022				2021			
	Expected credit loss rate %	Gross trade receivables £m	Expected credit losses £m	Net trade receivables £m	Expected credit loss rate %	Gross trade receivables £m	Expected credit losses £m	Net trade receivables £m
Not past due	0.1%	144.7	(0.2)	144.5	0.3%	119.1	(0.4)	118.7
Past due 0-30 days	0.5%	21.5	(0.1)	21.4	—	14.8	—	14.8
Past due 31-60 days	—	3.9	—	3.9	—	3.8	—	3.8
Past due 61-90 days	61.9%	2.1	(1.3)	0.8	7.1%	1.4	(0.1)	1.3
Past due more than 90 days	100.0%	7.5	(7.5)	—	94.5%	11.0	(10.4)	0.6
		179.7	(9.1)	170.6		150.1	(10.9)	139.2

Cash, cash equivalents and derivatives

Cash balances held by companies representing over 65% of the Group's revenue are managed centrally through a number of pooling arrangements. Credit risk is managed by investing in 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.

Offsetting financial assets and liabilities

The following table shows the amounts recognised for forward exchange contracts, which are subject to offsetting arrangements on a gross basis, and the amounts offset in the balance sheet.

The Group also has cash pooling agreements which cannot be offset under IFRS, but which could be settled net under the terms of master netting agreements, and are also presented in the table to show the total net exposure of the Group.

	Gross amounts of recognised financial assets/ (liabilities) £m	Amounts offset £m	Net amounts presented on the balance sheet £m	Financial instruments not offset in the balance sheet £m	Net amount £m
2022					
Derivative financial assets	97.4	(96.1)	1.3	—	1.3
Derivative financial liabilities	(97.7)	96.1	(1.6)	—	(1.6)
Cash and cash equivalents	117.7	—	117.7	(1.5)	116.2
Bank and other borrowings	(1.5)	—	(1.5)	1.5	—
2021					
Derivative financial assets	84.0	(83.4)	0.6	—	0.6
Derivative financial liabilities	(84.0)	83.4	(0.6)	—	(0.6)
Cash and cash equivalents	127.3	—	127.3	—	127.3
Bank and other borrowings	—	—	—	—	—

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.

Notes to the consolidated financial statements continued

21. Financial risk management (continued)

The following are the undiscounted contracted maturities of financial liabilities, including interest payments:

Cash flows associated with non-derivative financial liabilities

31 December 2022								
	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								
1.18% Euro Senior Notes 2023	1.18%	2023	22.1	22.4	22.4	–	–	–
3.17% US Dollar Senior Notes 2023	3.17%	2023	12.4	12.8	12.8	–	–	–
1.55% Euro Senior Notes 2026	1.55%	2026	22.2	23.4	0.3	0.3	22.8	–
3.37% US Dollar Senior Notes 2026	3.37%	2026	80.6	91.0	2.7	2.7	85.6	–
4.87% US Dollar Senior Notes 2026	4.87%	2026	21.1	24.2	1.0	1.0	22.2	–
1.74% Euro Senior Notes 2028	1.74%	2028	8.9	9.9	0.2	0.2	0.5	9.0
2.89% Euro Senior Notes 2030	2.89%	2030	22.1	27.1	0.6	0.6	1.9	24.0
Bank and other borrowings		Up to 2027	76.4	76.2	1.6	(0.3)	74.9	–
5.50% Cumulative First Preference shares	5.50%		0.1	–	–	–	–	–
5.00% Cumulative Second Preference shares	5.00%		0.3	–	–	–	–	–
Lease liabilities	4.77%	Up to 2051	51.9	65.3	10.5	8.5	19.9	26.4
Trade and other payables			78.6	78.6	78.6	–	–	–
			396.7	430.9	130.7	13.0	227.8	59.4

Bank and other borrowings includes an unsecured multi-currency revolving credit facility set to mature in November 2027.

21. Financial risk management (continued)

	31 December 2021							
	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								
1.18% Euro Senior Notes 2023	1.18%	2023	21.0	21.6	0.2	21.4	–	–
3.17% US Dollar Senior Notes 2023	3.17%	2023	11.1	11.8	0.4	11.4	–	–
1.55% Euro Senior Notes 2026	1.55%	2026	21.1	25.1	0.3	0.3	24.5	–
3.37% US Dollar Senior Notes 2026	3.37%	2026	72.2	81.5	2.4	2.4	76.7	–
4.87% US Dollar Senior Notes 2026	4.87%	2026	18.8	22.5	0.9	0.9	20.7	–
1.74% Euro Senior Notes 2028	1.74%	2028	8.4	9.8	0.1	0.1	0.9	8.7
2.89% Euro Senior Notes 2030	2.89%	2030	21.0	26.9	0.6	0.6	2.2	23.5
Bank and other borrowings		Up to 2024	–	–	–	–	–	–
5.50% Cumulative First Preference shares	5.50%		0.1	–	–	–	–	–
5.00% Cumulative Second Preference shares	5.00%		0.3	–	–	–	–	–
Lease liabilities	4.77%	Up to 2051	49.8	63.5	9.8	7.9	18.2	27.6
Trade and other payables			61.8	61.8	61.8	–	–	–
			285.6	324.5	76.5	45.0	143.2	59.8

Notes to the consolidated financial statements continued

21. Financial risk management (continued)

Cash flows associated with derivatives

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. All derivatives are net settled.

	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
2022						
Cash flow hedges						
Forward exchange contracts – assets	1.1	79.7	79.2	0.5	–	–
Forward exchange contracts – liabilities	(1.3)	(79.5)	(79.0)	(0.5)	–	–
	(0.2)	0.2	0.2	–	–	–
Fair value flow hedges						
Forward exchange contracts – assets	0.2	18.0	18.0	–	–	–
Forward exchange contracts – liabilities	(0.3)	(17.9)	(17.9)	–	–	–
	(0.1)	0.1	0.1	–	–	–
	(0.3)	0.3	0.3	–	–	–
2021						
Cash flow hedges						
Forward exchange contracts – assets	0.5	64.0	64.0	–	–	–
Forward exchange contracts – liabilities	(0.5)	(64.0)	(64.0)	–	–	–
	–	–	–	–	–	–
Fair value flow hedges						
Forward exchange contracts – assets	0.1	20.1	20.1	–	–	–
Forward exchange contracts – liabilities	(0.1)	(20.1)	(20.1)	–	–	–
	–	–	–	–	–	–
	–	–	–	–	–	–

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 enters into derivatives 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 Board. 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. 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	
	2022 £m	2021 £m	2022 £m	2021 £m
Financial assets	–	–	117.7	127.3
Financial liabilities	(241.7)	(223.8)	(76.4)	–
	(241.7)	(223.8)	41.3	127.3

21. Financial risk management (continued)

The fixed rate financial liabilities comprise the currency equivalent of £189.4 million (2021: £173.6 million) of Senior Notes, £0.4 million (2021: £0.4 million) of cumulative Preference shares and lease liabilities of £51.9 million (2021: £49.8 million). The average cost of the Group's fixed rate instruments is 3.32% (2021: 3.29%) including lease liabilities and 2.92% (2021: 2.90%) excluding lease liabilities.

The variable rate financial assets include the bank balances and cash deposits detailed in note 17 and the variable rate financial liabilities include bank borrowings detailed in note 20. Where cash and overdrafts are included in Group cash pool arrangements interest is charged on net bank balances and borrowings. The average rate of the Group's variable rate instruments is 2.5% (2021: 2.5%).

An increase of 100 basis points in interest rates on the variable element of the Group's net floating rate liabilities and cash at the reporting date would have increased profit by £0.5 million (2021: £1.3 million). A decrease of 100 basis points would have decreased profit by £0.3 million (2021: £0.6 million). This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

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.

Functional currency of Group operations	2022			2021		
	GBP £m	USD £m	Euro £m	GBP £m	USD £m	Euro £m
Trade receivables	9.5	0.3	(0.1)	11.4	(0.1)	(3.2)
Trade payables	(3.8)	0.2	1.7	(1.3)	(0.3)	3.6
Net debt	(8.0)	0.6	1.1	(10.2)	1.3	0.4
Net balance sheet exposure	(2.3)	1.1	2.7	(0.1)	0.9	0.8

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206. reconciliations of the statutory results to the adjusted measures can be found on pages 57-59.

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 which hedge 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 2022 was a liability of £0.2 million (2021: £nil).

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 borrowing 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.

Notes to the consolidated financial statements continued

21. Financial risk management (continued)

The Group's currency split of total borrowings was as follows:

	2022 £m	2021 £m
GBP	76.7	0.5
USD	114.2	102.1
Euro	75.3	71.4
Other	—	—
	266.2	174.0

The Group's sensitivity to changes in foreign exchange rates on financial assets and liabilities as at 31 December 2022 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 £11.2 million (2021: £9.9 million). Conversely, if GBP had weakened by 10%, reported net financial liabilities would have increased by £13.9 million (2021: £12.2 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. 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.

Hedging instruments

	Maturity date		Notional value: Local currency		Change in fair value for recognising hedge ineffectiveness		Carrying amount of the hedging instruments assets/ (liabilities)	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Cash flow hedges								
Highly probable forecast sales	to Jun 2024	to Dec 2022	29.7	40.4	0.3	0.6	0.5	0.2
Highly probable forecast purchases	to Jun 2024	to Dec 2022	9.7	7.1	0.1	(0.1)	0.1	—

Weighted average hedge rates for the year were as follows:

	Weighted average exchange rates	
	2022 £m	2021 £m
EUR/GBP	1.15	1.16
AUD/GBP	1.70	1.84
SGD/GBP	1.62	1.85
USD/GBP	1.20	1.37

Hedged items

	Change in value used for calculating hedge ineffectiveness		Balance in cash flow hedge reserve/foreign currency translation reserve for continuing hedges	
	2022 £m	2021 £m	2022 £m	2021 £m
Cash flow hedges				
Forecast sales	(0.3)	(0.6)	(0.5)	0.1
Forecast purchases	(0.1)	0.1	(0.1)	—

21. Financial risk management (continued)

As at 31 December 2022 the amount in the hedging reserve and translation reserve arising from hedging relationships for which hedge accounting is no longer applied was £nil (2021: £nil).

The Group expects highly probable sales and purchases in UK, Europe, North America, Australia and Asia. The Group has entered into foreign exchange forward contracts (for terms not exceeding 18 months) to hedge the exchange rate risk arising from these anticipated future transactions. It is anticipated that the transactions will take place during the next financial year, at which time the amount deferred in equity will be reclassified to profit or loss.

All hedging instruments are presented within derivative financial instruments on the Group balance sheet.

Exchange rates

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

	2022		2021	
	Closing rate	Average rate	Closing rate	Average rate
GBP to:				
USD	1.21	1.24	1.35	1.38
Euro	1.13	1.17	1.19	1.16

For illustrative purposes, the table below provides details of the impact on 2022 revenue, Group adjusted operating profit and profit before tax if the actual reported results, calculated using 2022 average exchange rates, were restated for GBP weakening by 10 cents against USD in isolation and 10 cents against the Euro in isolation:

	2022			2021		
	Revenue £m	Group adjusted operating profit ¹ £m	Profit before tax £m	Revenue £m	Group adjusted operating profit £m	Profit before tax £m
Increase in revenue/Group adjusted operating profit/profit before tax if:						
GBP weakens by 10c against USD in isolation	16.9	2.2	2.0	29.6	3.9	3.5
GBP weakens by 10c against the Euro in isolation	21.8	3.5	3.2	18.8	3.3	3.1

¹ Definitions of these non-GAAP measures can be found in the glossary of terms on page 206, reconciliations of the statutory results to the adjusted measures can be found on pages 57-59

Other market price risk

Equity price risk arises from FVOCI equity instruments 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.

The Group monitors capital using the indicators set out in the table below. These indicators are also presented excluding the impact of IFRS 16 Leases as these adjusted measures are more closely aligned to the Group's covenants.

Notes to the consolidated financial statements continued

21. Financial risk management (continued)

Debt to adjusted capital

	2022			2021		
	As stated £m	IFRS 16 impact £m	Excluding IFRS 16 £m	As stated £m	IFRS 16 impact £m	Excluding IFRS 16 £m
Borrowings and overdrafts	266.2	–	266.2	174.0	–	174.0
Lease liabilities	51.9	(51.9)	–	49.8	(49.8)	–
Less: cash and cash equivalents	(117.7)	–	(117.7)	(127.3)	–	(127.3)
Net debt ¹	200.4	(51.9)	148.5	96.5	(49.8)	46.7
Total equity	429.6	–	429.6	349.6	–	349.6
Less: amounts accumulated in equity relating to cash flow hedges	0.2	–	0.2	0.1	–	0.1
Adjusted capital	429.8	–	429.8	349.7	–	349.7
Net debt ¹ to adjusted capital ratio	0.5	n/a	0.3	0.3	n/a	0.1

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206; reconciliations of the statutory results to the adjusted measures can be found on pages 57–59.

Net debt¹ to EBITDA¹

	2022			2021		
	As stated £m	IFRS 16 impact £m	Excluding IFRS 16 £m	As stated £m	IFRS 16 impact £m	Excluding IFRS 16 £m
Net debt	200.4	(51.9)	148.5	96.5	(49.8)	46.7
Operating profit before specific adjusting items	146.3	(3.6)	142.7	118.5	(3.0)	115.5
Depreciation and amortisation	42.8	(7.8)	35.0	44.0	(7.9)	36.1
EBITDA	189.1	(11.4)	177.7	162.5	(10.9)	151.6
Net debt ¹ to EBITDA ¹ ratio	1.1x	n/a	0.8x	0.6x	n/a	0.3x

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206; reconciliations of the statutory results to the adjusted measures can be found on pages 57–59.

Interest cover

	2022			2021		
	As stated £m	IFRS 16 impact £m	Excluding IFRS 16 £m	As stated £m	IFRS 16 impact £m	Excluding IFRS 16 £m
EBITDA ¹	189.1	(11.4)	177.7	162.5	(10.9)	151.6
Net finance costs (excluding IAS 19 pension charge)	7.8	(2.4)	5.4	7.6	(2.3)	5.3
Interest cover	24.2x	n/a	32.9x	21.4x	n/a	28.6x

1. Definitions of these non-GAAP measures can be found in the glossary of terms on page 206; reconciliations of the statutory results to the adjusted measures can be found on pages 57–59.

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.

21. Financial risk management (continued)

Fair values

	31 December 2022				31 December 2021			
	Carrying amount £m	Fair value			Carrying amount £m	Fair value		
		Level 1 £m	Level 2 £m	Total £m		Level 1 £m	Level 2 £m	Total £m
Financial assets and liabilities held at amortised cost								
1.18% Euro Senior Notes 2023	(22.1)	–	(21.6)	(21.6)	(21.0)	–	(21.1)	(21.1)
3.17% US Dollar Senior Notes 2023	(12.4)	–	(12.1)	(12.1)	(11.1)	–	(11.3)	(11.3)
1.55% Euro Senior Notes 2026	(22.2)	–	(20.1)	(20.1)	(21.1)	–	(21.4)	(21.4)
3.37% US Dollar Senior Notes 2026	(80.6)	–	(73.5)	(73.5)	(72.2)	–	(72.8)	(72.8)
1.74% Euro Senior Notes 2028	(8.9)	–	(7.7)	(7.7)	(8.4)	–	(8.6)	(8.6)
2.89% Euro Senior Notes 2030	(22.1)	–	(19.0)	(19.0)	(21.0)	–	(22.1)	(22.1)
4.87% US Dollar Senior Notes 2026	(21.1)	–	(20.2)	(20.2)	(18.8)	–	(20.6)	(20.6)
5.50% Cumulative First Preference shares	(0.1)	–	(0.1)	(0.1)	(0.1)	–	(0.1)	(0.1)
5.00% Cumulative Second Preference shares	(0.3)	–	(0.3)	(0.3)	(0.3)	–	(0.3)	(0.3)
	(189.8)	–	(174.6)	(174.6)	(174.0)	–	(178.3)	(178.3)
Derivative financial assets held at fair value	1.3	–	1.3	1.3	0.6	–	0.6	0.6
	1.3	–	1.3	1.3	0.6	–	0.6	0.6
Derivative financial liabilities held at fair value	(1.6)	–	(1.6)	(1.6)	(0.6)	–	(0.6)	(0.6)

The table above analyses the fair values of financial instruments held by the Group, by valuation method, together with the carrying amounts shown in the balance sheet.

The fair value of cash and cash equivalents, current trade and other receivables/payables and floating-rate bank and other borrowings are excluded from the preceding table as their carrying amount approximates their fair value.

Fair value hierarchy

The different levels have been defined as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: not traded in an active market but the fair values are based on quoted market prices or alternative pricing sources with reasonable levels of price transparency. Fair value is calculated using discounted cash flow methodology, future cash flows are estimated based on forward exchange rates.
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The major methods and assumptions used in estimating the fair values of financial instruments reflected in the preceding table are as follows:

Equity securities

Fair value is based on quoted market prices at the balance sheet date.

Notes to the consolidated financial statements continued

21. Financial risk management (continued)

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.

Fixed-rate 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 borrowings are 4.2%-6.4% (2021: 1.0%-3.1%).

There have been no transfers between Level 1 and Level 2 during 2022 and 2021 and there were no Level 3 financial instruments in either 2022 or 2021.

22. Pensions and other post-retirement employee benefits

The Group operates a number of defined benefit arrangements as well as defined contribution plans. The defined benefit plans are primarily in the UK, US and Europe and predominantly provide pensions based on service and career-average pay. In addition post-retirement medical plans are operated in the US.

Summary of net defined benefit obligations

	2022 £m	2021 £m
Present value of unfunded defined benefit obligations	(36.5)	(47.3)
Present value of funded defined benefit obligations	(485.3)	(687.2)
Fair value of plan assets	506.2	631.8
	(15.6)	(102.7)

Amounts recognised in profit or loss

	Note	2022 £m	2021 £m
Current service cost		(2.7)	(3.2)
Administrative expenses recognised outside of the pension liability		(1.5)	(1.3)
Curtailments and settlements		0.2	0.1
Total expense within operating costs relating to defined benefit plans		(4.0)	(4.4)
Defined contribution plans		(12.2)	(10.7)
Total expense within operating costs		(16.2)	(15.1)
Net interest on net defined benefit liability		(1.4)	(1.6)
Total expense recognised in profit or loss		(17.6)	(16.7)

Amounts recognised in other comprehensive income

	2022 £m	2021 £m
Experience loss on plan obligations	(14.4)	(4.9)
Changes in financial assumptions underlying the present value of plan obligations - gain	225.6	51.3
Changes in demographic assumptions underlying the present value of plan obligations - gain	0.8	6.7
Actual return on plan assets (excluding amounts included in net interest expense)	(206.5)	2.4
Remeasurements recognised in other comprehensive income	5.5	55.5
Deferred tax associated with the above	(3.4)	(0.6)
Total amount recognised in other comprehensive income	2.1	54.9

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 £12.2 million (2021: £10.7 million). The expense includes contributions to two US Multi-Employer Plans of £0.3 million (2021: £0.3 million). The Group expects to contribute £13.0 million to ongoing defined contribution arrangements in 2023.

22. Pensions and other post-retirement employee benefits (continued)

Defined benefit plans

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 12 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 Group in such matters. The Board of Trustees must be composed of representatives of the Company, plan participants and independent trustee directors, in accordance with the UK Scheme's governing documents.

Funding legislation in the UK requires that schemes are fully funded on a scheme-specific basis, 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.

The most recent full actuarial valuations of the UK Schemes were undertaken as at 31 March 2022 and resulted in combined assessed deficits of £49.7 million on the 'Technical Provisions' basis. The Company subsequently agreed with the Trustees to make a lump sum contribution to the Schemes of £67.0 million on 29 December 2022 in lieu of the remaining contributions that would otherwise have been due under the existing recovery plans from the 31 March 2019 valuations. The sum paid also represented the value of the deficit on the more prudent 'Long Term Objective' basis. As a result, no further contributions to the Schemes are expected to be required pending the results of the next full valuations as at 31 March 2025.

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. The Morgan Pension Scheme was closed to the future accrual of benefits with effect from 6 April 2018. Current employees, including those who were active in the Schemes at closure, are auto-enrolled into the Morgan Group Personal Pension Plan for their future pension benefits.

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.

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 (together 'the US Schemes'). The MUSE DB 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 nine years.

The qualified MUSE DB Scheme's 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 US, 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 MUSE DB Scheme was undertaken as at 1 January 2022 and the Scheme was fully funded on this basis.

On the more stringent DBO (Defined Benefit Obligation) basis used for IAS 19 purposes, the deficit of the MUSE DB Scheme as at 31 December 2022 totalled £3.4 million (2021: £1.3 million).

No further significant contributions to the MUSE DB Scheme are anticipated in the medium term.

European schemes

In Europe (excluding UK), 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.

Notes to the consolidated financial statements continued

22. Pensions and other post-retirement employee benefits (continued)

	31 December 2022				
	UK £m	US £m	Europe £m	Rest of the World £m	Total £m
Summary of net obligations					
Present value of unfunded defined benefit obligations	–	(5.8)	(26.7)	(4.0)	(36.5)
Present value of funded defined benefit obligations	(359.5)	(116.1)	(1.6)	(8.1)	(485.3)
Fair value of plan assets	384.7	112.7	0.4	8.4	506.2
	25.2	(9.2)	(27.9)	(3.7)	(15.6)
Movements in present value of defined benefit obligation					
At 1 January 2022	(544.0)	(139.3)	(39.4)	(11.8)	(734.5)
Current service cost	–	–	(1.1)	(1.6)	(2.7)
Interest cost	(10.3)	(3.9)	(0.3)	(0.2)	(14.7)
Actuarial gain/(loss)					
Experience gain/(loss) on plan obligations	(14.7)	(0.1)	0.4	–	(14.4)
Changes in financial assumptions – gain	184.5	28.2	12.2	0.7	225.6
Changes in demographic assumptions – gain/(loss)	0.9	–	(0.1)	–	0.8
Benefits paid	24.1	9.2	1.6	1.2	36.1
Curtailments and settlements	–	–	–	0.2	0.2
Exchange adjustments	–	(16.0)	(1.6)	(0.6)	(18.2)
At 31 December 2022	(359.5)	(121.9)	(28.3)	(12.1)	(521.8)
Movements in fair value of plan assets					
At 1 January 2022	492.3	131.6	0.4	7.5	631.8
Interest on plan assets	9.4	3.8	–	0.1	13.3
Remeasurement loss	(177.2)	(28.9)	–	(0.4)	(206.5)
Contributions by employer	84.3	0.7	1.6	2.0	88.6
Benefits paid	(24.1)	(9.2)	(1.6)	(1.2)	(36.1)
Exchange adjustments	–	14.7	–	0.4	15.1
At 31 December 2022	384.7	112.7	0.4	8.4	506.2
Actual return on assets	(167.8)	(25.1)	–	(0.3)	(193.2)
Fair value of plan assets by category					
Equities	–	6.1	–	–	6.1
Growth assets ¹	40.3	–	–	–	40.3
Bonds	18.0	104.8	–	–	122.8
Liability-driven investments (LDI) ²	210.9	–	–	–	210.9
Matching insurance policies	106.1	1.4	0.4	6.4	114.3
Other	9.4	0.4	–	2.0	11.8
	384.7	112.7	0.4	8.4	506.2

¹ Growth assets include investment in Global Diversified and Multi-Asset Funds as well as UK Property

² The LDI assets are pooled funds in the UK that provide a leveraged return linked to long duration fixed interest and index linked government bonds valued at the bid price of the units. This provides interest rate and inflation hedging equivalent in size to circa 100% of the invested assets of the UK Schemes measured on the 'Long Term Objective' basis (Gilts +50bps) (excluding matching insurance policies)

22. Pensions and other post-retirement employee benefits (continued)

The Group expects to contribute £3.8 million to these arrangements in 2023.

	UK £m	US £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 2023	–	0.7	1.7	1.4	3.8

	31 December 2021				
	UK £m	US £m	Europe £m	Rest of the World £m	Total £m
Summary of net obligations					
Present value of unfunded defined benefit obligations	–	(6.4)	(37.5)	(3.4)	(47.3)
Present value of funded defined benefit obligations	(544.0)	(132.9)	(1.9)	(8.4)	(687.2)
Fair value of plan assets	492.3	131.6	0.4	7.5	631.8
	(51.7)	(7.7)	(39.0)	(4.3)	(102.7)

Movements in present value of defined benefit obligation

At 1 January 2021	(603.4)	(147.5)	(45.3)	(11.1)	(807.3)
Current service cost	–	–	(1.1)	(2.1)	(3.2)
Interest cost	(7.2)	(3.3)	(0.2)	(0.1)	(10.8)
Actuarial gain/(loss)					
Experience gain/(loss) on plan obligations	(5.2)	(0.4)	0.9	(0.2)	(4.9)
Changes in financial assumptions – gain	43.3	5.5	2.0	0.5	51.3
Changes in demographic assumptions – gain/(loss)	7.2	(0.5)	–	–	6.7
Benefits paid	21.3	8.5	1.5	0.3	31.6
Curtailments and settlements	–	–	–	0.2	0.2
Exchange adjustments	–	(1.6)	2.8	0.7	1.9
At 31 December 2021	(544.0)	(139.3)	(39.4)	(11.8)	(734.5)

Movements in fair value of plan assets

At 1 January 2021	483.1	140.2	0.5	7.2	631.0
Interest on plan assets	5.9	3.2	–	0.1	9.2
Remeasurement gain/(loss)	7.8	(5.3)	–	(0.1)	2.4
Contributions by employer	16.8	0.7	1.5	1.1	20.1
Benefits paid	(21.3)	(8.5)	(1.5)	(0.3)	(31.6)
Curtailments and settlements	–	–	–	(0.1)	(0.1)
Exchange adjustments	–	1.3	(0.1)	(0.4)	0.8
At 31 December 2021	492.3	131.6	0.4	7.5	631.8
Actual return on assets	13.6	(2.1)	–	(0.1)	11.4

Fair value of plan assets by category

Equities ¹	42.9	–	–	–	42.9
Growth assets ²	103.6	7.2	–	–	110.8
Bonds	90.4	119.9	–	–	210.3
Liability-driven investments (LDI) ³	108.4	–	–	–	108.4
Matching insurance policies	144.5	–	0.4	4.8	149.7
Other	2.5	4.5	–	2.7	9.7
	492.3	131.6	0.4	7.5	631.8

1. Equity values include both physical equities and the value of equity futures contracts used to gain leveraged exposure to global equity markets.

2. Growth assets include investment in Global Diversified and Multi Asset Funds as well as UK Property.

3. The LDI assets are pooled funds in the UK that provide a leveraged return linked to long duration fixed interest and index-linked government bonds valued at the bid price of the units. This provides interest rate and inflation hedging equivalent in size to circa 100% of the invested assets of the UK Schemes.

Notes to the consolidated financial statements continued

22. Pensions and other post-retirement employee benefits (continued)

Actuarial assumptions

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, life expectancy and several other assumptions. In making these estimates and assumptions, the Directors consider advice provided by external advisors, such as actuaries.

The assumptions used are best estimate assumptions chosen from a reasonable range and 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 the US is material to the cost of the promised benefits. In both the UK and Europe, where relevant, the assumed increases in salaries and pensions in payment are derived from assumed future inflation.

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 cash flow profile and duration of the insured obligations, rather than those of the Schemes as a whole.

Actuarial assumptions were:

	UK %	US %	Europe %	Rest of the World %
2022				
Discount rate	4.81	4.99	3.70	5.30
Salary increase	n/a	n/a	2.20	5.00
Inflation (UK: RPI/CPI)	3.26/2.47	n/a	2.20	n/a
Pensions increase ¹	3.00/3.11/3.70	n/a	2.20	n/a
Mortality – post-retirement:				
Life expectancy of a male aged 60 in accounting year (years)	25.79	24.80	25.19	n/a
Life expectancy of a male aged 60 in accounting year + 20 (years)	27.24	24.90	27.98	n/a
2021				
Discount rate	1.92	2.71	0.90	2.90
Salary increase	n/a	n/a	2.40	4.30
Inflation (UK: RPI/CPI)	3.40/2.61	n/a	1.90	n/a
Pensions increase	3.00/3.22/3.75	n/a	1.90	n/a
Mortality – post-retirement:				
Life expectancy of a male aged 60 in accounting year (years)	26.0	24.7	25.0	n/a
Life expectancy of a male aged 60 in accounting year + 20 (years)	27.4	24.8	27.9	n/a

¹ Pension increases in the UK reflect both fixed rate and RPI-related increases to different elements of members' pensions

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.

22. Pensions and other post-retirement employee benefits (continued)

The sensitivities of the Group's net balance sheet to the principal assumptions are:

		2022		2021	
		Increase on defined benefit obligation	Increase on deficit	Increase on defined benefit obligation	Increase on deficit
		£m	£m	£m	£m
	Change in assumption				
Discount rate	Decrease by 0.1%	5.8	5.0	10.7	9.4
Discount rate	Decrease by 0.5%	30.0	25.9	55.9	49.4
Inflation	Increase by 0.1%	1.8	1.7	3.7	3.5
Inflation	Increase by 0.5%	9.2	8.7	18.6	17.6
Mortality – post-retirement	Pensioners live 1 year longer	20.5	13.6	33.3	21.9
Exchange rates	GBP weakens against USD by 10%	13.5	1.0	15.5	0.9
	GBP weakens against EUR by 10%	3.3	3.2	4.4	4.3

These sensitivities have been calculated to show the movement in the net balance sheet in isolation, and assume 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.

Risks

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 advisors.

The most significant risks to which the Group is exposed are:

- **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 the majority 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 via bonds and various hedging instruments. In the UK, the bonds and LDI mandates target an interest rate hedge against movements in government bond yields (including providing protection against changes to future inflation expectations) for an amount equal to approximately 100% of the liabilities valued on the 'Long Term Objective'. In the US, the bond mandates provide an interest rate hedge of approximately 100% of the liabilities for funded plans.

In addition, the IAS 19 defined benefit obligation is linked to yields on AA-rated corporate bonds; however some 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.

23. Share-based payments

The Group operates various share option programmes that allow Group employees to acquire shares in the Company. During 2022, awards were made to executives and senior employees under the Morgan Advanced Materials plc Long-Term Incentive Plan (LTIP), the Morgan Advanced Materials plc Deferred Bonus Plan (DBP) and the Morgan Advanced Materials plc Restricted Stock Units (RSU). The Company also maintains a UK all-employee Sharesave scheme (Sharesave). Further details can be found in the Remuneration Report on pages 90–116.

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 charge expensed to the income statement in 2022 was £5.7 million (2021: £4.5 million).

Notes to the consolidated financial statements continued

23. Share-based payments (continued)

The following options and awards were outstanding at 31 December 2022 in respect of Ordinary shares:

	Employees entitled	Vesting conditions	Exercise/award price(s)	Number of shares outstanding	Exercise dates ranging	
					from	to
LTIP	Senior employees	Continued employment plus satisfaction of performance metrics	–	4,585,134	1 January 2023	30 May 2025
Sharesave	All UK employees	Continued employment	181.00p-321.00p	1,053,084	1 December 2022	1 June 2026
DBP	Senior employees	Continued employment	–	513,137	18 March 2022	21 March 2025
RSU	Select employees	Continued employment	–	1,366,351	21 May 2023	30 May 2025

The numbers and weighted average exercise prices of share options are as follows:

	2022		2021	
	Weighted average exercise price	Number of options	Weighted average exercise price	Number of options
Outstanding at the beginning of the period	26.44p	8,174,265	28.68p	8,532,753
Granted during the period	23.24p	2,985,494	11.58p	2,654,176
Forfeited during the period	39.31p	(158,602)	25.37p	(659,714)
Exercised during the period	39.31p	(1,280,013)	31.21p	(1,081,782)
Lapsed during the period	0.71p	(2,203,438)	6.92p	(1,271,168)
Outstanding at the end of the period	28.30p	7,517,706	26.44p	8,174,265
Exercisable at the end of the period	182.49p	138,258	90.14p	115,153

The weighted average share price at the date of exercise during the period was 293.19 pence (2021: 328.64 pence).

Measurement of fair values

The DBP is an award of deferred shares which include the accumulated value of any dividends which fall during the period from the date of grant to the vesting date. The RSU is an award of shares, which are released in tranches to the participant over a specified period of time with no performance conditions except continued employment by the Group. As such, the grant-date fair value of the DBP and RSU are equal to the share price at the date of grant.

	Awards made in 2022			
	LTIP	Sharesave	DBP	RSU
Share price at award date	294.50p-317.50p	234.50p	318.00p	294.50p-317.50p
Exercise price	n/a	210.00p	n/a	n/a
Fair value at measurement date	101.00p-260.00p	48.00p	318.00p	294.50p-317.50p
Fair value measurement method	Actuarial binomial model	Modified binomial model	n/a	n/a
Fair value model inputs:				
Expected volatility (expressed as weighted average volatility used in the model)	30%	35%		
Option life (expressed as weighted average life used in the model)	3.0 years	3.3 years		
Expected dividends	3.2%-3.5%	4.2%		
Risk-free interest rate	1.3%-1.5%	4.0%		

23. Share-based payments (continued)

The expected volatility is based on the historical 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 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 2022 was 204.74 pence (2021: 271.44 pence).

24. Provisions and contingent liabilities

	Closure and restructuring provisions £m	Legal and other provisions £m	Environmental provisions £m	Total £m
Balance at 1 January 2022	11.8	10.0	7.8	29.6
Provisions made during the year	1.3	0.2	1.1	2.6
Provisions used during the year	(3.2)	(1.7)	(1.3)	(6.2)
Provisions reversed during the year	(0.6)	(0.6)	(0.5)	(1.7)
Effect of movements in foreign exchange	1.2	0.2	0.3	1.7
Balance at 31 December 2022	10.5	8.1	7.4	26.0
Current	2.5	3.5	3.9	9.9
Non-current	8.0	4.6	3.5	16.1
	10.5	8.1	7.4	26.0

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.

Whilst the Group's restructuring programme was completed in 2021, we retain provisions for remaining lease exit costs and multi-employer pension obligations from two sites which were closed during 2021. The cash outflows relating to the pension obligations may continue for up to 19 years, subject to any settlement being reached in advance of that date. Cash outflows in relation to the lease may continue for the next four years.

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. 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.

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 Group is 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 £10.2 million (2021: £10.5 million) in the ordinary course of business.

Environmental provisions

Environmental provisions are made for quantifiable environmental liabilities arising from known environmental issues. The amounts provided are based on the best estimate of the costs required to remedy these issues. At one site, a remediation feasibility study is currently being conducted in relation to a known environmental issue and in conjunction with the local environmental regulator. A remediation plan has been prepared. The provision recorded reflects the estimated costs of remediation and awaits final regulatory approval. The provision is expected to be utilised in the next five years.

Notes to the consolidated financial statements continued

24. Provisions and contingent liabilities (continued)

Environmental contingent liabilities

The Group is subject to local health, safety and environmental laws and regulations concerning its manufacturing operations around the world. These laws and regulations may require the Group to take future action to remediate the impact of historical manufacturing processes on the environment or lead to other economic outflows. Such contingencies may exist for various sites which the Group currently operates or has operated in the past. There is a contingent liability arising from the as yet unknown environmental issues at the site referred to above, pending the completion of the feasibility study.

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. We have provided for estimates of the Group's likely exposures where these can be reliably estimated. These are disclosed in notes 8 and 14.

25. Capital commitments

In 2022, commitments for property, plant and equipment and computer software expenditure for which no provision has been made in these accounts amount to £5.9 million (2021: £6.3 million) for the Group.

26. Related parties

Identification of related parties

The Group has related party relationships with its subsidiaries (a list of all related undertakings and associates is shown in note 43), and with its Directors, executive officers and their close family members.

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:

	2022 £m	2021 £m
Short-term employee benefits	4.8	7.5
Employer national insurance contributions	1.0	0.4
Pension and other post-employment costs	0.3	0.3
Share-based payment expense ¹	1.9	1.7
Termination payments	0.1	-
Non-executive Directors' fees and benefits	0.5	0.5
Total compensation of key management personnel	8.6	10.4

¹ Share-based payment expense represents the net IFRS 2 share-based payment (credit)/charge to the consolidated income statement in the year for the members of the Executive Committee. In 2022, due to changes in assumptions in non-market based performance conditions, a net credit of £0.1 million was recognised in the consolidated income statement (2021: net credit of £0.1 million).

Other related party transactions

On 28 April 2021, the Group completed the sale of its investment in associate, as detailed in note 2. In 2022, there was £nil sales to (2021: £nil) and £nil purchases from (2021: £0.6 million) the associate. As at 31 December 2022, trade receivables due from the associate were £nil (2021: £nil) and trade payables due to the associate were £nil (2021: £nil).

27. Subsequent events

Morgan experienced a cyber security incident in January 2023, having detected unauthorised activity on the network. Immediate steps were taken to contain the incident, launch incident response plans, engage specialist support services and embark on restoring systems. All manufacturing sites are operational, although some continue to use manual processes as work continues to restore their systems.

This has been treated as a non-adjusting post balance sheet event and there has been no impact on the financial results reported for the year ended 31 December 2022.

We expect to incur around £15 million of system recovery and specialist support costs, including IT asset impairment charges of £0.7 million. These charges will be presented separately as specific adjusting items in the consolidated income statement for the year ending 31 December 2023. At the date of signing, and following consultation with our advisors, we also have a non-adjusting post balance sheet contingent liability relating to potential enforcement action or civil claims pending the completion of our investigation into what data was accessed and regulatory engagement.

Company balance sheet

AS AT 31 DECEMBER 2022

	Note	2022 £m	2021 £m
Non-current assets			
Intangible assets	30	1.1	2.6
Property, plant and equipment	31	3.7	3.4
Right-of-use assets	32	0.9	0.8
Investments in subsidiary undertakings	33	757.8	718.2
Debtors – amounts due after more than one year	34	139.0	218.0
Employee benefits: pensions	38	6.4	–
		908.9	943.0
Current assets			
Debtors – amounts due within one year	34	159.1	22.9
Cash and cash equivalents		7.2	19.4
		166.3	42.3
Current liabilities			
Creditors – amounts falling due within one year	35	122.4	68.6
Provisions	39	2.2	–
		124.6	68.6
Net current assets/(liabilities)		41.7	(26.3)
Total assets less current liabilities		950.6	916.7
Non-current liabilities			
Creditors – amounts falling due after more than one year	36	270.6	202.7
Employee benefits: pensions	38	–	15.0
Provisions	39	3.0	5.1
		273.6	222.8
Net assets		677.0	693.9
Capital and reserves			
Equity shareholders' funds			
Share capital	40	71.3	71.3
Share premium		111.7	111.7
Merger reserve		17.0	17.0
Capital redemption reserve		35.7	35.7
Retained earnings		441.3	458.2
Shareholders' funds		677.0	693.9

Under Section 408 of the Companies Act 2006, the Company is exempt from the requirement to present its own income statement. During 2022, the Company recognised a profit of £13.6 million (2021: £122.6 million).

The financial statements were approved by the Board of Directors on 27 April 2023 and were signed on its behalf by:

Pete Raby

Chief Executive Officer

Richard Armitage

Chief Financial Officer

Company statement of changes in equity

FOR THE YEAR ENDED 31 DECEMBER 2022

	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 2021	71.3	111.7	17.0	35.7	341.0	576.7
Total comprehensive income for the year:						
Profit for the year	–	–	–	–	122.6	122.6
Other comprehensive income	–	–	–	–	14.8	14.8
Transactions with owners:						
Dividends	–	–	–	–	(19.1)	(19.1)
Equity-settled share-based payment transactions	–	–	–	–	4.5	4.5
Own shares acquired for share incentive schemes (net)	–	–	–	–	(5.6)	(5.6)
Balance at 31 December 2021	71.3	111.7	17.0	35.7	458.2	693.9
Balance at 1 January 2022	71.3	111.7	17.0	35.7	458.2	693.9
Total comprehensive income for the year:						
Profit for the year	–	–	–	–	13.6	13.6
Other comprehensive income	–	–	–	–	(2.5)	(2.5)
Transactions with owners:						
Dividends	–	–	–	–	(31.6)	(31.6)
Equity-settled share-based payment transactions	–	–	–	–	6.0	6.0
Own shares acquired for share incentive schemes (net)	–	–	–	–	(2.4)	(2.4)
Balance at 31 December 2022	71.3	111.7	17.0	35.7	441.3	677.0

Notes to the Company balance sheet

28. Accounting policies

Basis of preparation

These financial statements were prepared in accordance with Financial Reporting Standard 101 Reduced Disclosure Framework ('FRS 101') and the Companies Act 2006.

The separate financial statements of the Company are presented as required by the Companies Act 2006. The Company meets the definition of a qualifying entity under FRS 100 Application of Financial Reporting Requirements issued by the FRC. Accordingly, these financial statements are prepared in accordance with Financial Reporting Standard 101 Reduced Disclosure Framework.

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 IFRS
- > the compensation of key management personnel, and
- > 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.

Under Section 408(4) of the Companies Act 2006 the Company is exempt from the requirement to present its own income statement or statement of comprehensive income.

The Company's financial statements are presented in its functional currency, pounds sterling, generally rounded to the nearest million.

The Company's financial statements are prepared on a going concern basis as set out in note 1 the consolidated financial statements of the Group.

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 for certain financial instruments that are measured at fair value.

Foreign currency

Transactions in foreign currencies are translated to the Company's functional currency at the foreign exchange rate ruling at the date of 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. 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.

Intangible assets

Intangible assets that are acquired by the Company are stated at cost less accumulated amortisation and less accumulated impairment losses.

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

28. Accounting policies (continued)

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.

Leasing

The Company assesses whether a contract is or contains a lease at inception of the contract. The Company recognises a right-of-use asset and a corresponding lease liability with respect to all lease arrangements in which it is the lessee.

The lease liability is initially measured at the present value of future lease payments including adjustments for any lease incentives receivable. Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability. Lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be readily determined, which is generally the case of leases in the company, the lessee's incremental borrowing rate is used, being the rate the individual lessee would have to pay to borrow the funds necessary to obtain an asset of similar value on similar terms.

The right-of-use-assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement date, less any lease incentives received and initial direct costs. They are subsequently measured at cost less accumulated depreciation and impairment losses.

Right-of-use assets are depreciated over the shorter period of the lease term and useful life of the underlying asset. The depreciation starts at the commencement date of the lease.

Investments in subsidiaries

Investments in subsidiaries are carried at cost less provision for impairment. The Company tests the investment balances for impairment annually or when there are indicators of impairment. If any such indication of impairment exists, the Company makes an estimate of its recoverable amount. Where the carrying amount of an investment exceeds its recoverable amount, the investment is considered impaired and is written down to its recoverable amount. Where these circumstances have reversed, the impairment previously made is reversed to the extent of the original cost of the investment.

Financial instruments

Financial instruments and financial liabilities are recognised in the Company balance sheet when the Company becomes party to the contractual provisions of the instrument.

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 recorded initially at transaction price and subsequently measured at amortised cost. This results in their recognition at nominal value less an allowance for any doubtful debts. The allowance for doubtful debts is recognised based on management's expectation of losses without regard to whether an impairment trigger happened or not (an 'expected credit loss' (ECL) model). The Group measures the loss allowance for trade receivables at an amount equal to lifetime ECL.

Notes to the Company balance sheet continued

28. Accounting policies (continued)

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. The Directors consider that the carrying amount of trade payables approximates to their fair value.

Interest-bearing borrowings

Interest-bearing bank loans and overdrafts are initially recorded at fair value of the consideration received, net of direct issue costs. They are subsequently held at amortised cost using the effective interest method. Finance charges, including premiums payable on settlement or redemption and direct issue costs, are accounted for using an effective interest rate method and are added to or deducted from the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.

Impairment of financial assets

The Company recognises provisions for expected credit losses (ECLs) on financial assets measured at amortised cost. The amount of expected credit losses is updated at each reporting date to reflect changes in credit risk with lifetime ECL recognised when there has been a significant increase in credit risk since initial recognition. Life ECL represents the expected credit losses that will result from all possible defaults over the expected life of the financial instrument.

To assess whether the credit risk has increased significantly since initial recognition the Company compares the risk of default occurring at the reporting date with the risk of default at the date of initial recognition. The Company utilises both quantitative and qualitative information to support this assessment, including historical experience and forward-looking information.

The Company considered amounts due from Group undertakings to be in default when the borrower is unlikely to pay its credit obligations to the Company in full. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

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. The Group enters into derivative financial instruments to manage its exposure to foreign exchange rate risks including non-designated foreign exchange forward contracts as detailed in note 45.

A derivative with a positive fair value is recognised as a financial asset whereas a derivative with a negative fair value is recognised as a financial liability. Derivatives are not offset in the financial statements unless the Group has both a legally enforceable right and intention to offset. The impact of the Master Netting Agreements on the Group's financial position is disclosed in note 22. A derivative is presented as a non-current asset or a non-current liability if the remaining maturity of the instrument is more than 12 months and it is not due to be realised or settled within 12 months. Other derivatives are presented as current assets or current liabilities.

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. Previously all of the Scheme assets and liabilities were recognised on the balance sheet of the Company only. Further details are provided in note 38.

28. Accounting policies (continued)

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. Share-based payment charges and credits relating to awards granted to employees of subsidiaries are recharged to those subsidiaries with a corresponding entry in the Company's income statement. 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 not 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.

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.

Disclosure of the share-based payment transactions can be found in note 23 to the Group financial statements.

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 where the effect of discounting is expected to be material.

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.

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.

Notes to the Company balance sheet continued

28. Accounting policies (continued)

Use of judgements and estimates

In preparing these financial statements, management has made judgements, estimates, and assumptions that affect the application of the Company's accounting policies and the reported amount of assets, liabilities, income and expenses.

In addition to the areas of judgement and estimates outlined in note 1 to the consolidated Group financial statements, the Company also identifies the assumptions required in investments impairment assessments as a source of significant risk of resulting in a material adjustment to the asset carrying values of the Company. Assessment of impairment relies on the use of estimates of the future profitability in a multiple-based valuation which may differ from the actual results achieved. Due to global economic uncertainty, there is an increased level of risk and therefore a key source of estimate uncertainty in these assumptions, see note 33 for sensitivity analysis.

29. Staff numbers and costs

The monthly average number of persons employed by the Company (including Directors) during the year was as follows:

Number of employees	2022	2021
Directors and corporate staff	69	58

Full details of the Directors' remuneration for the period can be found in the Remuneration Report on pages 90–116.

Aggregate employee-related costs were as follows:

	Note	2022 £m	2021 £m
Wages and salaries		9.0	11.3
Equity-settled share-based payments	23	5.1	4.5
Social security costs		1.6	1.5
Other pension costs		0.7	0.6
		16.4	17.9

In 2022, £2.2 million (2021: £0.7 million) of the equity-settled share-based payments amount was recharged to other Morgan Group companies.

30. Intangible assets

	Software £m
Cost	
Balance at 1 January 2022	10.3
Additions – externally purchased	0.2
Disposals	–
Balance at 31 December 2022	10.5
Amortisation	
Balance at 1 January 2022	7.7
Amortisation for the year	1.7
Disposals	–
Balance at 31 December 2022	9.4
Carrying amounts	
At 31 December 2021	2.6
At 31 December 2022	1.1

31. Property, plant and equipment

	Plant, equipment and fixtures £m	Land and buildings £m	Total £m
Cost			
Balance at 1 January 2022	1.3	6.5	7.8
Additions	0.9	–	0.9
Disposals	(0.1)	–	(0.1)
Balance at 31 December 2022	2.1	6.5	8.6
Depreciation and impairment losses			
Balance at 1 January 2022	0.6	3.8	4.4
Depreciation charge for the year	0.5	–	0.5
Disposals	–	–	–
Balance at 31 December 2022	1.1	3.8	4.9
Carrying value			
At 31 December 2021	0.7	2.7	3.4
At 31 December 2022	1.0	2.7	3.7

32. Leasing

The reconciliation in the movement of the carrying value of right-of-use assets is set out in the table below:

	Plant and equipment £m	Land and buildings £m	Total £m
Balance at 1 January 2022	0.2	0.6	0.8
Additions	0.5	–	0.5
Depreciation charge for the year	(0.3)	(0.1)	(0.4)
Balance at 31 December 2022	0.4	0.5	0.9

The Company leases several assets including buildings and IT equipment. The average lease term at 31 December 2022 is 1.9 years (2021: 2.1 years).

At 31 December 2022, the Company has not applied any exemptions for short-term leases or leases of low value assets.

Notes to the Company balance sheet continued

33. Investment in subsidiary undertakings

	Shares in Group undertakings £m	Loans £m	Total £m
Cost			
Balance at 1 January 2022	449.4	353.8	803.2
Reclassification	–	1.0	1.0
Loans advanced	–	18.0	18.0
Loan repayments	–	–	–
Effect of movement in foreign exchange	–	21.8	21.8
Balance at 31 December 2022	449.4	394.6	844.0
Provisions			
Balance at 1 January 2022	20.8	64.2	85.0
Provided in the year	1.0	–	1.0
Reversal of impairment	(0.2)	(0.2)	(0.4)
Disposals	–	–	–
Effect of movement in foreign exchange	–	0.6	0.6
Balance at 31 December 2022	21.6	64.6	86.2
Carrying amounts			
At 31 December 2021	428.6	289.6	718.2
At 31 December 2022	427.8	330.0	757.8

In December, management conducted a review of the Company's investment in subsidiary undertakings. Following this review management identified impairment losses of £1.0 million (2021: £nil) and the reversal of impairment losses of £0.2 million (2021: £118.9 million) against a number of shares in Group undertakings. In addition, management identified no impairment losses (2021: £nil) and no reversal of impairment losses (2021: £0.7 million) against loans.

The impairment assessment of shares in Group undertakings uses the 2022 results in an EBITDA* multiple valuation, which is sensitive to changes in the principal assumptions. A 2% increase in either EBITDA* or the multiple would increase the carrying value of the share in Group undertakings by £3.7 million at 31 December 2022. A 2% decrease would decrease the carrying value by £4.3 million. Management considers these changes in assumptions to be reasonably possible.

Note 43 to the financial statements gives details of the Company's fixed asset investments.

34. Debtors

	Note	2022 £m	2021 £m
Due within one year			
Amounts owed by Group undertakings		152.8	19.1
Other debtors		2.2	1.3
Derivative financial assets	44	2.0	1.0
Prepayments		2.1	1.5
		159.1	22.9
Due after more than one year			
Derivative financial assets	44	–	8.2
Amounts owed by Group undertakings		139.0	209.8
		139.0	218.0

35. Creditors: amounts falling due within one year

	Note	2022 £m	2021 £m
Bank overdrafts	37	1.6	0.2
Borrowings	37	34.5	
Lease liabilities		0.5	0.4
Trade creditors		2.6	2.9
Amounts owed to Group undertakings		69.1	53.3
Other creditors		–	0.1
Accruals		7.5	10.8
Derivative financial liabilities	44	6.4	0.9
		122.4	68.6

36. Creditors: amounts falling due after more than one year

	Note	2022 £m	2021 £m
Amounts owed to Group undertakings		33.5	25.4
Borrowings	37	229.6	173.6
Lease liabilities		0.3	0.4
Derivative financial liabilities	44	7.2	2.7
Other creditors		–	0.6
		270.6	202.7

Notes to the Company balance sheet continued

37. Borrowings and lease liabilities

Terms and debt repayment schedule

	31 December 2022				31 December 2021			
	Carrying amount £m	Level 1 £m	Level 2 £m	Total £m	Carrying amount £m	Level 1 £m	Level 2 £m	Total £m
Financial assets and liabilities held at amortised cost								
1.18% Euro Senior Notes 2023	(22.1)	–	(21.6)	(21.6)	(21.0)	–	(21.1)	(21.1)
3.17% US Dollar Senior Notes 2023	(12.4)	–	(12.1)	(12.1)	(11.1)	–	(11.3)	(11.3)
1.55% Euro Senior Notes 2026	(22.2)	–	(20.1)	(20.1)	(21.1)	–	(21.4)	(21.4)
3.37% US Dollar Senior Notes 2026	(80.6)	–	(73.5)	(73.5)	(72.2)	–	(72.8)	(72.8)
1.74% Euro Senior Notes 2028	(8.9)	–	(7.7)	(7.7)	(8.4)	–	(8.6)	(8.6)
2.89% Euro Senior Notes 2030	(22.1)	–	(19.0)	(19.0)	(21.0)	–	(22.1)	(22.1)
4.87% US Dollar Senior Notes 2026	(21.1)	–	(20.2)	(20.2)	(18.8)	–	(20.6)	(20.6)
5.50% Cumulative First Preference shares	(0.1)	–	(0.1)	(0.1)	(0.1)	–	(0.1)	(0.1)
5.00% Cumulative Second Preference shares	(0.3)	–	(0.3)	(0.3)	(0.3)	–	(0.3)	(0.3)
	(189.8)	–	(174.6)	(174.6)	(174.0)	–	(178.3)	(178.3)
Derivative financial assets held at fair value	1.3	–	1.3	1.3	0.6	–	0.6	0.6
	1.3	–	1.3	1.3	0.6	–	0.6	0.6
Derivative financial liabilities held at fair value	(1.6)	–	(1.6)	(1.6)	(0.6)	–	(0.6)	(0.6)

In 2022, no borrowings were secured on the assets of the Company (2021: £nil).

38. Employee benefits: pensions

Defined benefit plans

The Company participates in two defined benefit pension schemes, the Morgan Pension Scheme and the Morgan Group Senior Staff Pension and Life Assurance Scheme ('the Schemes'). The 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. The Morgan Pension Scheme was closed to the future accrual of benefits on and with effect from 6 April 2018. Current employees, including those who were active in the Schemes at closure, were auto-enrolled into the Morgan Group Personal Pension Plan for their future pension benefits.

	2022 £m	2021 £m
Pension plans and employee benefits		
Present value of funded defined benefit obligations	(118.9)	(175.9)
Fair value of plan assets	125.3	160.9
Net obligations	6.4	(15.0)

Movements in present value of defined benefit obligation

At 1 January	(175.9)	(195.5)
Interest cost	(3.5)	(2.4)
Remeasurement (losses)/gains:		
Changes in financial assumptions	57.0	14.3
Changes in demographic assumptions	0.9	1.9
Experience adjustments on benefit obligations	(6.1)	(1.6)
Benefits paid	8.7	7.4
Net past service credit	—	—
At 31 December	(118.9)	(175.9)

Movements in fair value of plan assets

At 1 January	160.9	160.7
Interest on plan assets	3.1	2.0
Remeasurement (losses)/gains	(54.3)	0.1
Contributions by employer	24.3	5.5
Benefits paid	(8.7)	(7.4)
At 31 December	125.3	160.9
Actual return on assets	(51.2)	2.1

Expense recognised in the income statement

	2022 £m	2021 £m
Net past service credit	—	—
Administrative expenses (including administration expenses incurred by the Company directly)	(1.2)	(0.9)
Net interest on net defined benefit liability	(0.4)	(0.4)
Total expense recognised in the income statement	(1.6)	(1.3)

The fair values of the plan assets were as follows:

	2022 £m	2021 £m
Equities and growth assets	59.8	43.6
Bonds	17.9	56.2
Matching insurance policies	44.9	60.1
Other	2.7	1.0
Total	125.3	160.9

Notes to the Company balance sheet continued

38. Employee benefits: pensions (continued)

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.

Principal actuarial assumptions at the year end were as follows:

Assumptions:	2022	2021
	%	%
Inflation (RPI/CPI)	3.26/2.47	3.40/2.61
Discount rate	4.81	1.92
Pensions increase	3.00/3.11/3.70	3.00/3.22/3.75
Salary increase	n/a	n/a
Mortality – post-retirement:		
Life expectancy of a male aged 60 in accounting year (years)	25.8	26.0
Life expectancy of a male aged 60 in accounting year + 20 (years)	27.2	27.4

Funding

The most recent full actuarial valuations of the UK Schemes were undertaken as at 31 March 2022 and resulted in combined assessed deficits of £49.7 million on the 'Technical Provisions' basis. The Company subsequently agreed with the Trustees to make a lump sum contribution to the Schemes of £67.0 million on 29 December 2022 in lieu of the remaining contributions that would otherwise have been due under the existing recovery plans from the 31 March 2019 valuations. The sum paid represented the value of the deficit on the more prudent 'Long Term Objective' basis on the date of that agreement, 25 October 2022. As a result, no further contributions to the Schemes are expected to be required pending the results of the next full valuations as at 31 March 2025.

Sensitivity analysis

The sensitivities of the Company's net balance sheet to the principal assumptions are:

		2022 Increase	2021 Increase
	Change in assumption	effect	effect
		£m	£m
Discount rate	Decrease by 0.1%	1.0	2.1
Inflation	Increase by 0.1%	0.4	0.8
Mortality – post-retirement	Pensioners live 1 year longer	2.5	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 2022 was £0.7 million (2021: £0.6 million).

39. Provisions and contingent liabilities

	Dilapidation	Other	Total
	provisions	provisions	
	£m	£m	£m
Balance at 1 January 2022	0.1	5.0	5.1
Provisions made during the year	–	1.5	1.5
Provisions used during the year	–	(1.4)	(1.4)
Effects of movement on foreign exchange	–	–	–
Balance at 31 December 2022	0.1	5.1	5.2
Current	0.1	2.1	2.2
Non-current	–	3.0	3.0
	0.1	5.1	5.2

Other provisions relate to legal claims and environmental provisions and are based on the Company's assessment of the probable cost of these activities.

39. Provisions and contingent liabilities (continued)

Contingent liabilities and guarantees

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.

The Company participates in a cash pooling arrangement provided by Lloyds Bank plc with other UK Group companies. As part of that pooling arrangement, the Company has provided a guarantee for any liabilities of the other participating companies to the bank, limited to the lower of:

- a) an amount equal to the base currency amount of the total liabilities in the cash pool; and
- b) an amount equal to the base currency amount of such guarantor's own net credit balance in the cash pool.

At the balance sheet date, the guaranteed amount was £0.1 million (2021: £0.1 million).

There are no other contingent liabilities in the Company as at 31 December 2022.

40. Share capital

	Ordinary shares	
In issue at beginning and end of the period	285,369,988	
	2022	2021
	£m	£m
Allotted, called up and fully paid		
Ordinary shares of 25 pence each	71.3	71.3
	71.3	71.3

Additionally the Company has authorised, issued and fully paid 437,281 (2021: 437,281) cumulative Preference shares classified as borrowings totalling £0.4 million (2021: £0.4 million). The Preference shares comprise 125,327 of 5.5% Cumulative First Preference shares of £1 each and 311,954 issued 5.0% Cumulative Second Preference shares of £1 each.

Refer to note 19 for details of the rights to dividends, voting rights and return of capital relating to the Preference shares.

For proposed Ordinary dividends see the consolidated income statement on page 130.

41. Share premium and reserves

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 19.

Apex Financial Services (Trust Company) Limited administer the Morgan General Employee Benefit Trust ('the 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 2022 was 1,173,686 (2021: 1,360,098) and at that date had a market value of £3.7 million (2021: £4.6 million).

In 2022, the amount of reserves of Morgan Advanced Materials plc that may be distributed under Section 831(4) of the Companies Act 2006 was £264.5 million (2021: £281.5 million). This comprises a portion of the profit and loss account.

Notes to the Company balance sheet continued

42. Related parties

The Company has related party relationships with its subsidiaries, its associate, its Directors and executive officers and their close family members. The Company is exempt from providing information relating to these parties with the exception of transactions with entities where the Company does not directly or indirectly own 100% of the shareholding, these are set out in the table below:

	2022 £m	2021 £m
Transactions with subsidiaries		
Income from management services	1.9	1.0
Net interest income	4.6	4.5
Dividend income	13.9	8.9
Loans owed by related parties	–	–
Loans owed to related parties	2.3	–
Other amounts owed by related parties	1.8	2.7
Other amounts owed to related parties	1.0	0.9

43. Fixed asset investments

In accordance with Section 409 of the Companies Act 2006, a full list of related undertakings as at 31 December 2022 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	100.00%
Morgan Technical Ceramics Australia Pty Ltd	Australia	4 Redwood Drive, Clayton, VIC 3168, Australia	100.00%
Morganite Australia Pty Ltd ¹²	Australia	30-36 Birrallee Road, Regency Park, SA 5010, 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 ¹³	Brazil	Avenida do Taboão 3265, Taboão, São Bernardo do Campo, São Paulo, CEP 09656-000, Brazil	100.00%
Morgan Advanced Materials Canada Inc. ¹⁴	Canada	1185 Walkers Line, Burlington, ON L7M 1L1, Canada	100.00%
Carbo Chile S.A.	Chile	Avenida San Eugenio 12462, Sitio 3, Loteo Estrella del Sur, Santiago, Chile	100.00%
Dalian Morgan Ceramics Company Ltd ¹⁷	China	Zhenxing Road, Pulandian Economic Development Zone, Dalian, Liaoning Province, China	100.00%
Morgan Guangzhou Trading Company Limited	China	Room 204, No. 10, Dalang North Street, Huangpu District, Guangzhou, China	100.00%
Morgan Haldenwanger Technical Ceramics (Wuxi) Co. Ltd ¹⁵	China	Gongyuanxi Road, Ding Shu Zhen, Yixing, Jiangsu Province 214221, China	100.00%
Morgan Molten Metal Systems (Suzhou) Co. Ltd ¹⁶	China	108 Tongsheng Road, Suzhou Industrial Park, Suzhou, Jiangsu Province, 215126, China	100.00%
Morgan Technical Ceramics (Suzhou) Co. Ltd	China	Room 09, 28th Floor (2809), 288 LongShan Road, Greenland Kanhu Plaza, Suzhou New District, Suzhou, 215163, China	100.00%
Morgan Thermal Ceramics (Shanghai) Co. Ltd ¹⁵	China	18 Kang An Road, Kang Qiao Industrial Zone, Pudong, Shanghai 201315, China	100.00%
Morgan International Trading (Shanghai) Co. Ltd ¹⁵	China	18 Kang An Road, Kang Qiao Industrial Zone, Pudong, Shanghai 201315, China	100.00%
Shanghai Morgan Advanced Material and Technology Co. Ltd ¹⁶	China	4250 Long Wu Road, Shanghai, 200241, China	100.00%
Jiangsu Morgan Ceramic Core Technology Co. Ltd ^{13 25}	China	2 Liye Road, Economic Development Zone, Wuxi, Jiangsu Province, 214131, China	100.00%

43. Fixed asset investments (continued)

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Morgan AM&T (Shanghai) Co. Ltd ¹³	China	4250 Long Wu Road, Shanghai, 200241, China	70.00%
Morgan Kailong (Jingmen) Thermal Ceramics Co. Ltd ¹⁵	China	20-1 Quankou Road, Jingmen City, Hubei Province, 448032, China	70.00%
Dalian Morgan Refractories Ltd ¹⁵	China	No. 06 Xi'nan Road, Shahekou District, Dalian, Liaoning Province 116200, China	70.00%
Yixing Morgan Thermal Ceramics Co. Ltd ¹⁵	China	2 Beidan Road, Taodu Industrial Park, Ding Shu Zhen, Yixing, Jiangsu, 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 S.A.S	France	6 rue du Réservoir, 68420 Eguisheim, France	100.00%
Thermal Ceramics de France S.A.S.U. ¹⁶	France	Centre de Vie BP 75, 3 rue du 18 Juin 1827, 42162 Andrézieux-Bouthéon, France	100.00%
Thermal Ceramics S.A. ^{10 16}	France	Centre de Vie BP 75, 3 rue du 18 Juin 1827, 42162 Andrézieux-Bouthéon, France	100.00%
Morgan Advanced Materials Haldenwanger GmbH ¹⁷	Germany	Teplitzerstraße 27, 84478 Waldkraiburg, Germany	100.00%
Morgan Electrical Carbon Deutschland GmbH	Germany	Zeppelinstraße 26, 53424 Remagen, Germany	100.00%
Morgan Thermal Ceramics Deutschland GmbH	Germany	Weidenbaumsweg 103, 21035, Hamburg, Germany	100.00%
Morgan Molten Metal Systems GmbH	Germany	Noltinastraße 29, 37297 Berkatal-Frankenhain, Germany	100.00%
Morgan Deutschland Holding GmbH	Germany	Zeppelinstraße 26, 53424 Remagen, Germany	100.00%
Porextherm Dämmstoffe GmbH	Germany	Heisingerstraße 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%
Refractarios Nacionales S.A.	Guatemala	Km. 34.5, Ruta al Pacífico, Palín, Escuintla, Guatemala	100.00%
Morgan AM&T Hong Kong Company Ltd	Hong Kong	Units 4-6, 11/F, Siu Wai Industrial Centre, 29-33 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong	100.00%
Morgan Materials Hungary Limited Liability Company ¹⁵	Hungary	Csillagvirág utca 7, 1106 Budapest, Hungary	100.00%
Morgan Advanced Materials India Private Ltd	India	P-11, Pandav Nagar, Mayur Vihar Phase I, Delhi, 110091, India	100.00%
Morganite Crucible (India) Ltd	India	B-11, MIDC Industrial Area, Waluj, Aurangabad, 431136, Maharashtra, India	75.00%
Ciria India Limited ⁵	India	P-11, Pandav Nagar, Mayur Vihar Phase I, Delhi, 110091 India	70.00%
Murugappa Morgan Thermal Ceramics Ltd ⁶	India	PO Box 1570, Dare House Complex, Old No. 234/New No. 2, NSC Bose Road, Chennai, 600001 India	51.00%
Thermal Ceramics Italiana S.R.L. ³	Italy	Via Vittori Pisani 20, 20124, Milan, Italy	100.00%
Morgan Carbon Italia S.R.L.	Italy	Via Vittori Pisani 20, 20124, Milan, Italy	100.00%
Morganite Carbon Kabushiki Kaisha	Japan	1-5, Isogamidori 7-chome, Chuo-ku, Kobe-shi, Hyogo, Japan	100.00%
Shin-Nippon Thermal Ceramics Corporation	Japan	Portus Center Building 12F, 4-45-1 Ebisu-jimacho, Sakai-ku, Sakai-shi, Osaka 590-0985, Japan	50.00%
Morgan Korea Company Ltd ^{14 16}	Korea	27 Nongongjoongang-ro 46 gil, Nongong-eup, Dalseong-gun, Daegu-si, Republic of Korea	93.19%
Morganite Luxembourg S.A.	Luxembourg	BP 15, Capellen, L-8301, Luxembourg	100.00%
Grafitos y Maquinados S.A. de C.V. ¹⁷	Mexico	Cerrada de la Paz No. 101, Col. Industrial La Paz, Pachuca Hidalgo, Mexico	100.00%

Notes to the Company balance sheet continued

43. Fixed asset investments (continued)

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Grupo Industrial Morgan S.A. de C.V. ¹⁹	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 C.V. ⁹	Mexico	Av. Fulton No. 20, Fraccionamiento Industrial 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%
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%
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%
Morgan Ceramics Asia Pte Ltd ¹	Singapore	150 Kampong Ampat, #05-06A, KA Centre, 368324, Singapore	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 España S.L.	Spain	Av. Europa, 106, 12006, Castellón, Spain	100.00%
Morganite Española S.A.	Spain	Av. Europa, 106, 12006, Castellón, Spain	100.00%
Morgan Matroc S.A. (in liquidation)	Spain	Roger de Lluria 104 5 ^o -2 ^a , 08037 Barcelona, Spain	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	22nd-25th Floor, 990 Abdulrahim Place, Rama IV Road, Khwaeng Silom Sub-district, Bangrak District, 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, Kiraç, Esenyurt, Istanbul 34522, Turkey	100.00%
Morgan Advanced Materials Industries Ltd	United Arab Emirates	KHIA4-07A, Khalifa Industrial Zone Abu Dhabi (KIZAD), Abu Dhabi, United Arab Emirates	100.00%
Certech International Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
MCCo Limited ²	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
MNA Finance Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan Electro Ceramics Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan Europe Holding Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan European Finance Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan Finance Management Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan Holdings Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan International Holding Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morgan North America Holding Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%

43. Fixed asset investments (continued)

Name of undertaking	Country of incorporation	Registered office address	% shareholding owned by the Group
Morgan Technical Ceramics Limited	United Kingdom	Morgan Advanced Materials – Technical Ceramics, Morgan Drive, Stourport-on-Severn, Worcestershire DY13 8DW, UK	100.00%
Morgan Trans Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morganite Carbon Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morganite Crucible Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Morganite Electrical Carbon Limited	United Kingdom	Upper Fforest Way, Morriston, Swansea, West Glamorgan, SA6 8PP, UK	100.00%
Morganite Special Carbons Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Petty France Investment Nominees Limited ¹	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
TCG Guardian 1 Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
TCG Guardian 2 Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Terrassen Holdings Limited ⁶	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
The Morgan Crucible Company Limited	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Thermal Ceramics Limited ⁷	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	100.00%
Thermal Ceramics UK Limited	United Kingdom	Tebay Road, Bromborough, Wirral, CH62 3PH, UK	100.00%
Clearpower Ltd ^{3,20}	United Kingdom	York House, Sheet Street, Windsor, Berkshire, SL4 1DD, UK	99.01%
Certech, Inc. ²⁴	United States	1 Park Place West, Wood-Ridge, New Jersey, 07075, USA	100.00%
Graphite Die Mold, Inc. ²²	United States	18 Air Line Park, Durham, Connecticut 06422-1000, USA	100.00%
Morgan Advanced Ceramics, Inc. ²²	United States	2425 Whipple Road, Hayward, California 94544, USA	100.00%
Morgan Advanced Materials and Technology Inc. ²²	United States	441 Hall Avenue, St Marys, Pennsylvania 15857, USA	100.00%
Morganite Crucible Inc. ²³	United States	2102 Old Savannah Road, Augusta, Georgia 30906, USA	100.00%
Morganite Industries Inc. ²⁴	United States	4000 West Chase Blvd, Suite 170, Raleigh, North Carolina 27607, USA	100.00%
National Electrical Carbon Products, Inc. ¹⁴	United States	PO Box 1056, 251 Forrester Drive, Greenville, South Carolina 29602, USA	100.00%
Thermal Ceramics Inc. ²²	United States	PO Box 923, 2102 Old Savannah Road, Augusta, Georgia 30906, USA	100.00%
Thermal Ceramics de Venezuela C.A. ⁵	Venezuela	Zona Ind. El Recreo, Av. 87 N°105-121, Flor Amarillo, Valencia Edo. Carabobo, 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. 100% owned by Morgan Advanced Materials plc

6. 51% owned by Morgan Advanced Materials plc

7. 50% owned by Morgan Advanced Materials plc

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 Ordinary and Non-Cumulative Non-Participating Redeemable Preference Shares.

13. Ownership held in Quotas.

14. Ownership held in Common Stock of no par value.

15. Ownership held in Registered Capital.

16. Ownership held in Ordinary Shares of no par value.

17. Ownership held in Partnership Shares

18. Ownership held in Common and Preference Shares

19. Ownership held in Series A and Series B

20. Ownership held in Ordinary A, B and C and Preference A and B Shares.

21. Ownership held in Ordinary A and B Shares

22. Ownership held in Common Stock

23. Ownership held in Preferred Stock and no par Common Stock

24. Ownership held in Class A, Class B and Class C Common Stock

25. De-registered February 2023

Notes to the Company balance sheet continued

43. Fixed asset investments (continued)

UK incorporated subsidiaries which have taken exemption from audit per Section 479A of the Companies Act 2006 for the year ended 31 December 2022 are listed below.

Morgan Advanced Materials plc will guarantee the debts and liabilities of the companies claiming the statutory audit exemption at the balance sheet date in accordance with Section 479C of the Companies Act 2006. The Company has assessed the probability of loss under the guarantee as remote.

Name of undertaking	Registered number
Clearpower Limited	06247523
MCCO Limited	03246886
MNA Finance Limited	10423297
Morgan Europe Holding Limited	02540399
Morgan European Finance Limited	09910922
Morgan Finance Management Limited	10423619
Morgan Holdings Limited	01956134
Morgan International Holding Limited	10677668
Morgan North America Holding Limited	08789720
Morgan Trans Limited	02557161
Morganite Carbon Limited	00679647
Morganite Crucible Limited	02133533
TCG Guardian 2 Limited	05564065
Terrassen Holdings Limited	01352995
The Morgan Crucible Company Limited	07328730

44. Derivative financial assets and liabilities

	2022 £m	2021 £m
Derivative financial assets		
Forward foreign exchange contracts non-designated		
– amounts falling due within one year	2.0	1.0
– amounts falling due after more than one year	–	8.2
	2.0	9.2
Derivative financial liabilities		
Forward foreign exchange contracts non-designated		
– amounts falling due within one year	(6.4)	(0.9)
– amounts falling due after more than one year	(7.2)	(2.7)
	(13.6)	(3.6)

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 – not traded in an active market but the fair values are based on quoted market prices or alternative pricing sources with reasonable levels of price transparency. Fair value is calculated using discounted cash flow methodology, future cash flows are estimated based on forward exchange rates.
- Level 3 – inputs for the asset 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

	2018 Results before specific adjusting items restated ² £m	2019 Results before specific adjusting items restated ² £m	2020 Results before specific adjusting items £m	2021 Results before specific adjusting items £m	2022 Results before specific adjusting items £m
Revenue	1,033.9	1,049.5	910.7	950.5	1,112.1
Profit from operations before amortisation of intangible assets	124.8	134.2	91.7	124.5	151.0
Amortisation of intangible assets	(8.0)	(8.1)	(6.1)	(6.0)	(4.7)
Operating profit	116.8	126.1	85.6	118.5	146.3
Net financing costs	(13.2)	(16.9)	(11.9)	(9.2)	(9.2)
Share of profit of associate (net of income tax)	0.8	0.5	0.6	0.4	–
Profit before taxation	104.4	109.7	74.3	109.7	137.1
Income tax expense	(29.0)	(29.9)	(20.2)	(29.7)	(37.1)
Profit after taxation before discontinued operations	75.4	79.8	54.1	80.0	100.0
Discontinued operations	(1.4)	0.7	–	–	–
Profit for the period	74.0	80.5	54.1	80.0	100.0
Assets employed					
Property, plant and equipment	314.5	317.2	267.6	248.1	283.2
Right-of-use assets	–	49.1	35.5	31.9	33.6
Intangible assets	215.6	204.8	185.4	183.1	189.0
Investments and other receivables	12.2	12.2	11.2	2.9	3.2
Deferred tax assets	6.9	6.0	14.4	15.9	15.3
Net current assets	106.8	125.1	136.7	202.8	212.6
Total assets less current liabilities	656.0	714.4	650.8	684.7	736.9
Employee benefits: pensions	190.4	156.8	176.3	102.7	15.6
Non-current provisions and other items	177.9	241.0	234.0	231.2	289.7
Deferred tax liabilities	11.0	4.9	0.5	1.2	2.0
	276.7	311.7	240.0	349.6	429.6
Equity					
Total equity attributable to equity holders of the Parent Company	232.3	270.2	202.3	310.6	389.0
Non-controlling interests	44.4	41.5	37.7	39.0	40.6
Total equity	276.7	311.7	240.0	349.6	429.6
Ordinary dividends per share³	11.0p	4.0p	5.5p	9.1p	12.0p
Earnings per share					
Continuing and discontinued operations					
Basic earnings/(loss) per share	16.2p	25.7p	(7.9)p	25.9p	31.0p
Diluted earnings/(loss) per share	16.1p	25.5p	(7.9)p	25.7p	30.7p
Adjusted earnings per share ⁴	26.7p	28.0p	19.0p	27.2p	33.8p
Diluted adjusted earnings per share ⁴	26.6p	27.8p	18.9p	27.0p	33.5p

1 The Group disposed of the Composites and Defence Systems business in 2018; the disposal group formed the Composites and Defence Systems operating segment and has been classified as a discontinued operation under IFRS 5

2 Figures for 2018/2019 have been restated to classify the Group's cumulative Preference shares as borrowings

3 On 3 March 2020, the Group announced the Board's decision to withdraw the proposed 2019 final dividend due to the financial uncertainty resulting from the COVID-19 pandemic

4 Definitions of these non-GAAP measures can be found in the glossary of terms on page 206; reconciliations of the statutory results to the adjusted measures can be found on pages 57–59

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 advisors 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

Constant-currency¹	Constant-currency revenue and Group adjusted operating profit are derived by translating the prior year results at current year average exchange rates.
Corporate costs	Corporate costs consist of the costs of the central head office.
Free cash flow before acquisitions, disposals and dividends¹	Cash generated from continuing operations less net capital expenditure, net interest paid, tax paid and lease payments.
Group earnings before interest, tax, depreciation and amortisation (EBITDA)¹	EBITDA is defined as operating profit before specific adjusting items, amortisation of intangible assets and depreciation.
Group adjusted operating profit¹	Operating profit adjusted to exclude specific adjusting items and amortisation of intangible assets.
Group organic¹	The Group results excluding acquisition, disposal and business exit impacts at constant-currency.
Adjusted earnings per share (EPS)¹	Adjusted 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.
Net debt¹	Borrowings, bank overdrafts and lease liabilities less cash and cash equivalents.
Net cash and cash equivalents¹	Net cash and cash equivalents is defined as cash and cash equivalents less bank overdrafts.
Return on invested capital (ROIC)¹	Group adjusted 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, borrowings, bank overdrafts and lease liabilities).
Specific adjusting items	See note 6 and note 1 to the consolidated financial statements for further details.
Underlying	Reference to underlying reflects the trading results of the Group without the impact of specific adjusting items and amortisation of intangible assets that would otherwise impact the users' understanding of the Group's performance. The Directors believe that adjusted results provide additional useful information on the core operational performance of the Group, and review the results of the Group on an adjusted basis internally.

¹ Reconciliations of these non-GAAP measures to GAAP measures can be found on pages 57-59

Shareholder information

Analysis of Ordinary shareholdings as at 31 December 2022

		Number of holdings	% of total holdings	Number of shares	% of share capital
Size of holding	1-2,000	3,472	74.59	1,862,128	0.65
	2,001-5,000	559	12.01	1,790,817	0.63
	5,001-10,000	193	4.15	1,358,937	0.48
	10,001-50,000	202	4.34	4,381,254	1.54
	50,001-100,000	57	1.22	4,107,516	1.44
	100,001 and above	172	3.69	271,869,336	95.26
		4,655	100.00	285,369,988	100.00
Holding classification	Individuals	4,158	89.32	6,806,939	2.39
	Nominee companies	373	8.01	233,445,427	81.80
	Trusts (pension funds etc)	4	0.09	30,519	0.01
	Others	120	2.58	45,087,106	15.80
		4,655	100.00	285,369,988	100.00

Key dates

29 June 2023	2023 Annual General Meeting (AGM), commencing at 10.30am.
28 July 2023	Half-year results announced via the Regulatory News Service and on the Company's website.

2022 and 2023 dividend payment dates

1 April and 1 October 2022	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.
18 November 2022	An interim cash dividend of 5.3 pence per Ordinary share of 25 pence each was paid to shareholders registered at the close of business on 28 October 2022.
3 July 2023	Subject to shareholders' approval at the 2023 AGM, a final cash dividend of 6.7 pence per Ordinary share of 25 pence each will be paid to shareholders registered at the close of business on 9 June 2023.
1 October 2023	Dividend payment date 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 advisors.
Share price	The price can be obtained on the Company's website: morganadvancedmaterials.com
ISIN Code	GB0006027295
LEI	I4KI4LL95N2PHDL7EG85
Ticker symbol	MGAM

Shareholder information continued

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	York House, Sheet Street, Windsor, SL4 1DD Registered in England and Wales No. 286773 Telephone: +44 (0)1753 837000 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 sustainability and responsibility/EHS reports are also available to view and download.
Company registrars	Equiniti Limited, Aspect House, Spencer Road, Lancing, West Sussex, BN99 6DA Telephone: +44 (0)371 384 2412 Website: www.shareview.co.uk Lines are open between 8.30am and 5.30pm, Monday to Friday (excluding UK public holidays). Shareholders with queries relating to their shareholding should contact Equiniti directly. Alternatively, shareholders may find the Investors section of our website useful for general enquiries.
Shareview portfolio	The most efficient way to communicate with Equiniti is by registering for a portfolio at www.shareview.co.uk . This is a service which enables shareholders to manage their shareholdings online.
Dividend payments	You can choose to receive your dividend in a number of ways. Dividends will automatically be paid to you by cheque in UK pounds sterling 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 are a shareholder who has a UK bank or building society account you can arrange to have dividends paid directly via a bank/building society mandate. You can add or change your mandate online at www.shareview.co.uk , or by contacting Equiniti. Overseas payments If you live overseas and would like dividends paid to an overseas account, please contact Equiniti by post to set up or amend a mandate. They offer an overseas payment service for 90 countries worldwide. Please see further information at www.shareview.co.uk . Multiple accounts on the shareholder register If a shareholder receives two or more sets of AGM documents, or multiple dividend payments, 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 Equiniti. Buying and selling shares Equiniti offer a service to buy and sell shares in UK listed companies. For more information, visit www.shareview.co.uk or call 03456 037 037. Providing this information is not a recommendation to buy or sell shares and this service may not be suitable for all shareholders. The price and value of any investments and income from them can fluctuate and may fall. Therefore, you may get back less than the amount you invested. Past performance is not a guide to future performance. Neither the Company nor Equiniti provides advice or makes recommendations about investments. If you have any doubts about the suitability of an investment, you should seek advice from a suitably qualified professional advisor. 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. Asset Reunification Programme Morgan has launched a tracing programme with the aim of reuniting 'lost' shareholders or their estates with unclaimed cash entitlements in respect of Morgan dividend payments. Cash entitlements may not have been claimed due to an address change, or where a shareholder is deceased and the beneficiaries or executors of an estate are not aware of the holding. If you would like to clarify whether you or a deceased person for whose estate you act holds shares in Morgan please contact Equiniti for further assistance.



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