VESUVIUS PLC

25 July 2019

Half Year Results for the six months ended 30 June 2019

Resilient H1 2019 performance, despite the challenging market environment

Vesuvius plc, a global leader in molten metal flow engineering and technology, announces its unaudited results for the six months ended 30 June 2019.

Financial summary

	H1 2019 (£m)	H1 2018 (£m)	Year-on-year change	Underlying change[1]
Revenue	889.4	897.0	-0.9%	-1.1%
Trading Profit[2]	98.9	99.6	-0.7%	-0.5%
Return on Sales[2]	*11.1%*	*11.1%*	*+2bps*	*+6bps*
Operating Profit	83.2	90.0	-7.6%	
Headline Profit Before Tax[2]	93.2	97.4	-4.3%	
Profit Before Tax	78.6	87.8	-10.5%	
Profit	55.8	70.0	-20.3%	
Headline Earnings[2]	63.8	68.7	-7.1%	
Headline EPS[2] (pence)	23.7	25.4	-6.7%	
Statutory EPS (pence)	19.5	24.4	-20.1%	
Operating cash flow[2]	81.8	76.7	+6.6%	
Cash generated from continuing operations	101.7	77.0	+32.1%	
Net Debt	307.0	281.8	+8.9%	
Dividend (pence)	6.2	6.0	+3.3%	

[1] Underlying basis is at constant currency and excludes separately reported items and the impact of acquisitions and disposals
[2] For definitions of non-GAAP measures, refer to Note 16 in the Group Condensed Financial Statements

Key Points

- Resilient H1 2019 performance in line with prior year, despite challenging steel markets outside of China and light vehicle related markets in Foundry
- Underlying revenue and trading profit (EBITA) down 1.1% and 0.5%, respectively
- Return-on-Sales maintained at 11.1%
- £5.8m of restructuring savings delivered in H1 2019
- Expansion of our restructuring programmes targeting £16.0m of additional savings by 2021 including CCPI targeted synergies which have increased significantly versus initial expectations
- Working capital to revenue ratio at 23.9%, in-line with the level at year-end 2018
- Net Debt / LTM EBITDA at 1.3x, up from 1.0x at year-end 2018 due to the CCPI acquisition and IFRS 16 reclassification of leases
- Interim dividend increased by 3.3% to 6.2 pence per share

Patrick André, Chief Executive of Vesuvius, commented:

"Vesuvius has delivered a solid set of results for H1 2019, despite the challenging market environment and we are announcing today a £16.0m increase in our targeted restructuring savings. Looking forward, assuming a stabilisation of our end markets at current levels, the Board expects our trading profit (EBITA) for 2019 to be broadly in-line with market expectations, supported by the acceleration and intensification of efforts to optimise our costs and remains confident in our ability to grow both trading profit (EBITA) and return-on-sales in the coming years."

For further information, please contact:

Shareholder/analyst enquiries:

Vesuvius plc	Patrick André, Chief Executive	+44 (0) 207 822 0000

	Guy Young, Chief Financial Officer	+44 (0) 207 822 0000
	Euan Drysdale, Group Head of Corporate Finance	+44 (0) 207 822 0027
	Virginia Skroski, Investor Relations Manager	+44 (0) 207 822 0016
Media enquiries:		
MHP Communications	Andrew Jaques/ Ollie Hoare/ Peter Lambie	+44 (0) 203 128 8100

Vesuvius management will make a presentation to analysts and investors on 25 July 2019 at 10.00 (GMT) in the London Stock Exchange, 10 Paternoster Square, London EC4M 7LT. For those unable to attend in person, an audio webcast and conference call will also be available (UK participant dial in +44(0)20 7192 8000; USA participant dial in +1 631 510 7495; confirmation code 2340858). This presentation will be broadcast live on Vesuvius' website, http://investors.vesuvius.com/investor-relations and an archive version of the presentation will be available on the website later that day.

About Vesuvius plc

Vesuvius is a global leader in molten metal flow engineering and technology principally serving the steel and foundry industries.

We develop innovative and customised solutions, often used in extremely demanding industrial environments, which enable our customers to improve their manufacturing processes, enhance product quality and reduce costs. These include flow control solutions, advanced refractories and other consumable products and increasingly, related technical services including data capture.

We have a worldwide presence. We serve our customers through a network of low-cost manufacturing plants located close to their own facilities, and embed our industry experts within their operations, who are all supported by our global technology centres.

Our core competitive strengths are our market and technology leadership, strong customer relationships, well established presence in developing markets and our global reach, all of which facilitate the expansion of our addressable markets.

Our ultimate goal is to create value for our customers, and to deliver sustainable, profitable growth for our shareholders giving a superior return on their investment whilst providing each of our employees with a safe workplace where he or she is recognised, developed and properly rewarded.

Forward looking statements

This announcement contains certain forward looking statements which may include reference to one or more of the following: the Group's financial condition, results of operations, cash flows, dividends, financing plans, business strategies, operating efficiencies or synergies, budgets, capital and other expenditures, competitive positions, growth opportunities for existing products, plans and objectives of management and other matters.

Statements in this announcement that are not historical facts are hereby identified as "forward looking statements". Such forward looking statements, including, without limitation, those relating to the future business prospects, revenue, working capital, liquidity, capital needs, interest costs and income, in each case relating to Vesuvius, wherever they occur in this announcement, are necessarily based on assumptions reflecting the views of Vesuvius and involve a number of known and unknown risks, uncertainties and other factors that could cause actual results, performance or achievements to differ materially from those expressed or implied by the forward looking statements. Such forward looking statements should, therefore, be considered in light of various important factors that could cause actual results to differ materially from estimates or projections contained in the forward looking statements. These include without limitation: economic and business cycles; the terms and conditions of Vesuvius' financing arrangements; foreign currency rate fluctuations; competition in Vesuvius' principal markets; acquisitions or disposals of businesses or assets; and trends in Vesuvius' principal industries.

The foregoing list of important factors is not exhaustive. When considering forward looking statements, careful consideration should be given to the foregoing factors and other uncertainties and events, as well as factors described in documents the Company files with the UK regulator from time to time including its annual reports and accounts.

You should not place undue reliance on such forward looking statements which speak only as of the date on which they are made. Except as required by the Rules of the UK Listing Authority and the London Stock Exchange and applicable law, Vesuvius undertakes no obligation to update publicly or revise any forward looking statements, whether as a result of new information, future events or otherwise. In light of these risks, uncertainties and assumptions, the forward looking events discussed in this announcement might not occur.

Vesuvius plc, 165 Fleet Street, London EC4A 2AE
Registered in England and Wales No. 8217766
LEI: 213800ORZ521W585SY02
www.vesuvius.com

Vesuvius plc

Half Year Results for the six months ended 30 June 2019

Vesuvius made further strategic progress in H1 2019 in line with our objectives, despite the challenging market environment. In the first five months of the year, steel production declined 0.2% year-on-year in the world excluding China (Vesuvius revenue in the world excluding China is >90% of total revenue), (as reported by the World Steel Association – June figures are not available at time of writing). We also experienced a challenging environment in Foundry end markets, with weakness in light vehicles in key markets including EMEA, NAFTA, China and India and in construction and agricultural equipment in India, South America and North Asia.

£m	H1 2019 Reported	Acquisitions /Disposals	H1 2019 Underlying	H1 2018 Reported	Currency	Acquisitions /Disposals	H1 2018 Underlying	Reported % change	Underlying % change
Revenue	**889.4**	**-9.7**	**879.7**	897.0	3.2	-11.1	889.1	-0.9%	-1.1%
Trading Profit	**98.9**	**-0.8**	**98.1**	99.6	-0.8	-0.2	98.6	-0.7%	-0.5%
Return on Sales %	**11.1%**	**-**	**11.1%**	11.1%	-	-	11.1%	+2bps	+6bps

Group trading performance

Group revenue was £889.4m, a decrease of 0.9% versus H1 2018 on a reported basis. Underlying Group revenue, adjusted for the effects of currency translation, acquisitions and disposals, decreased by 1.1%. Trading profit (EBITA) for the half year was £98.9m (H1 2018: £99.6m), down 0.7% on a reported basis and down 0.5% on an underlying basis. Return on sales was maintained at 11.1% in H1 2019 (H1 2018: 11.1%).

Underlying performance is adjusted for the divestment of BMI, an Advanced Refractories installation business, in October 2018 and the acquisition of CCPI, completed on 1 March 2019.

Strategic progress

Vesuvius' core strategic objective is to deliver long-term sustainable and profitable growth. We have a clear strategy to achieve this target centred around five key execution priorities. Our progress in H1 2019 against each of these execution priorities is detailed below:

- **Reinforce our technology leadership**
  - Acceleration of our R&D efforts with the expansion of our research centre in Suzhou, China
- **Increase the penetration of our value-creating solutions**
  - Successful launch in H1 2019 of several new products including high performance plates and our new filter technology
  - Six waves of new product launches planned over next 18 months
- **Capture the growth in developing markets**
  - 11% sales growth in China and 14% growth in South East Asia for our Steel Division
  - 10% sales growth in EEMEA (Eastern Europe, Middle-East (including Turkey) and Africa) and 6% growth in South America for our Foundry Division
- **Improve our cost leadership and margins**
  - In H1 2019 we delivered £5.8m of restructuring benefits
  - We have today announced a £16.0m increase in the restructuring savings we expect to deliver by 2021
  - CCPI synergy expectations have increased significantly
- **Develop our Technical Service offering**
  - Increased penetration of our robotic and laser measurement solutions

Foreign exchange

The net impact of average H1 2019 exchange rates compared to H1 2018 averages has been a H1 2019 headwind of approximately £0.8m at trading profit level. All things being equal, if month end June 2019 rates were to persist for the remainder of the year, we expect that the impact on our otherwise expected full year 2019 trading profit to be broadly neutral, due to recent sterling weakness. This expectation is taken into account in the trading profit (EBITA) guidance in our outlook statement.

Restructuring

We have launched a further set of restructuring initiatives targeting our manufacturing network in NAFTA and EMEA. These new initiatives are expected to deliver incremental recurring annual savings of £16.0m by 2021 at an incremental cost of £25.7m. This increases the total expected savings from the previously announced £22.0m of savings for a cost of £19.3m to £38.0m of savings for a cost of £45.0m.

In H1 2019 we delivered £5.8m of restructuring benefits, which is £1.2m lower than originally anticipated, as a result of slower than planned efficiency gains in Foundry EMEA restructuring. The total originally estimated benefits remain unchanged.

With the new initiatives, the combined programmes are now expected to deliver savings of £17.6m in 2019 (previously estimated £14.0m), £18.2m in 2020 (previously estimated £8.5m) and £5.0m in 2021 (previously estimated £2.3m).

We expect to incur the majority of these costs by the end of 2019, with the exception of £3.0m which will be reported in 2020.

CCPI

The integration of CCPI is proceeding as planned and expected synergies have increased materially since we acquired this business. We have decided to close CCPI's main facility at Blanchester and absorb its production volumes into our existing North American manufacturing footprint. As a result, our total expected synergies to be fully delivered in 2020 are £4.0m, implying a post-synergy multiple of c.4x EBITDA. The CCPI synergies are included in the restructuring savings targets.

Working Capital

Our average Working Capital / Revenue for the prior 12 months was 23.9% at the end of H1 2019, broadly in-line with the position at year-end 2018. Improvements in debtor and creditor days have been offset by some temporary inventory build-up to manage rationalisation of manufacturing capacity under the expanded restructuring programmes.

Tax

In line with guidance provided at the 2018 full year results, our Effective Tax Rate ("ETR") in H1 2019 was 28.0% (26.0% in H1 2018). This resulted in an H1 2019 headline tax charge of £26.0m, £1.4m higher than H1 2018's figure of £24.6m. The ETR increase is mainly due to a deferred tax charge of £6.2m in respect of the utilisation of our USA tax losses in the period.

Financial position

Our Net Debt / LTM EBITDA ratio was 1.3x at 30 June 2019 versus 1.0x at the end of 2018. Net Debt at 30 June 2019 increased to £307.0m, versus £248.0m at year-end 2018 as Free Cash Flow of £43.4m was offset by items including a £37.2m final dividend payment for 2018 and the £32.4m acquisition of CCPI. Net debt was also increased by an adjustment of £29.6m to reflect the reclassification of leases under IFRS 16, although this is not included in the calculation of net debt under our debt covenants. The weighted average maturity of Vesuvius' committed debt facilities now stands at approximately four years.

Quality, health and safety

Vesuvius places great emphasis on the importance of quality, health and safety in the workplace and in the communities in which we operate. Reliability in quality and delivery is vital to our customers as they use Vesuvius' products in critical areas of their own processes. The level of risk attached to a catastrophic failure is often such that, for people and equipment, no compromise can be accepted. Our Lost Time Injury Frequency Rate has improved from 1.67 LTIs per million hours worked in H1 2018 to 1.39 LTIs in H1 2019. We have however, seen a deterioration of our LTI Severity rate performance from 61 to 84 Lost Days per million hours worked.

Interim dividend

The Board has declared an interim dividend of 6.2 pence per share (2018: 6.0 pence per share), which represents an increase of 3.3%. The interim dividend will be paid on 20 September 2019 to shareholders on the register at the close of business on 9 August 2019. Any shareholder wishing to participate in the Vesuvius Dividend Reinvestment Plan needs to have submitted their election to do so by 30 August 2019.

Outlook

We have experienced challenging end markets in H1 2019 and we do not expect a recovery in H2 2019.
Current market conditions do not change the fact that in the medium-term and beyond, our core end markets in both steel and foundry are structurally growing and we have the right strategy and teams in place to deliver.
Assuming a stabilisation of our end markets at current levels, the Board expects our trading profit (EBITA) for 2019 to be broadly in-line with market expectations, supported by the acceleration and intensification of efforts to optimise our costs and remains confident in our ability to grow both trading profit (EBITA) and return-on-sales in the coming years.

Operational Review

Vesuvius comprises two Divisions, Steel and Foundry. The Steel Division operates as three business lines, Steel Flow Control, Advanced Refractories and Digital Services.

Steel Division

According to the World Steel Association, global steel production excluding China in the first five months of 2019 declined by 0.2% year-on-year and grew by 5.0% in the world including China (June figures are not available at time of writing). There was continued strength in the USA and China, where steel production grew 6.2% and 10.2% respectively, however, there was some weakness in the EU28, EEMEA and Latin America, where steel production decreased by 2.4%, 0.1% and 3.8% respectively.

Vesuvius' Steel Division reported revenues of £614.9m in H1 2019, an increase of 0.6% compared to H1 2018. On an underlying basis, Steel Division revenue was up 0.4%. Our results show a resilient top line despite specific customer issues in EEMEA and a challenging market in India, thanks to the successful implementation of restructuring programmes and the initial positive impact of the CCPI acquisition. We were particularly pleased with our continued momentum in China where we benefited from the trend towards higher quality steel requiring Vesuvius' higher quality products.

On a reported basis, Steel Division trading profit improved 3.7% year-on-year. On an underlying basis, trading profit increased by 3.3%, with return on sales increasing by 30 basis points due in part to the ongoing delivery of restructuring benefits.

Steel Division	**H1 2019 (£m)**	**H1 2018 (£m)**	**Change (%)**	**Underlying change (%)**
Steel Flow Control Revenue	322.9	326.8	-1.2%	-1.4%
Steel Advanced Refractories Revenue	276.6	266.9	+3.6%	+3.2%
Digital Services Revenue	15.4	17.2	-10.4%	-8.2%
Total Steel Revenue	**614.9**	**610.9**	**+0.6%**	**+0.4%**
Total Steel Trading Profit	**65.3**	**63.0**	**+3.7%**	**+3.3%**
Total Steel Return on Sales	***10.6%***	***10.3%***	***+30bps***	***+30bps***

Steel Flow Control

The Flow Control business unit supplies the global steel industry with consumable ceramic products, systems, robotics, digital services and technical services. These products are used to contain, control and monitor the flow of molten steel in the continuous casting process. The consumable ceramic products that Vesuvius supplies have a short service life (often a matter of a few hours) due to the significant wear caused by the extremely demanding environment in which they are used. These products must withstand extreme temperature changes, whilst resisting liquid steel and slag corrosion. In addition, the ceramic parts in contact with the liquid steel must not in any way contaminate it. The quality, reliability and consistency of these products and the associated digital services we provide are therefore critical to the quality of the finished metal being produced and the productivity, profitability and safety of our customers' processes.

Steel Flow Control Revenue	**H1 2019 (£m)**	**H1 2018 (£m)**	**Change (%)**	**Underlying change (%)**
Americas	108.2	103.4	+4.6%	+2.2%
Europe, Middle East & Africa (EMEA)	125.2	136.0	-8.0%	-6.8%
Asia-Pacific	89.5	87.4	+2.4%	+2.4%
Total Steel Flow Control Revenue	**322.9**	**326.8**	**-1.2%**	**-1.4%**

Steel Flow Control reported revenues of £322.9m in H1 2019, a decrease of 1.2% compared to H1 2018 on a reported basis. Underlying regional performance was mixed, with Americas and Asia-Pacific revenue increasing by 2.2% and 2.4%, respectively, and EMEA revenue decreasing by 6.8%.

In the USA and Canada, Steel Flow Control's underlying revenues increased by 2.2%, slightly less than the steel market due to unfavourable customer mix. In Latin America, Steel Flow Control's underlying revenues decreased by 2.6% due to weak steel production. Steel Flow Control's revenues in EMEA decreased by 6.8%, mostly due to declining revenues in EEMEA as a result of steel market weakness, specific customer issues and increased regulatory restrictions imposed during the year. Underlying revenue increased by 2.4% in Asia-Pacific, and revenues in China increased by 8.8%, continuing our track record of growth in these regions.

Steel Advanced Refractories

The Steel Advanced Refractories business unit supplies complete value-added solutions to its customers including specialist refractory materials, advanced installation technologies (including robots), computational fluid dynamics capabilities and lasers. The specialist refractory materials are subject to extreme temperatures, corrosion and abrasion, they are in the form of powder mixes, which are spray-applied or cast onto the vessel to be lined ('monolithics') and refractory shapes (e.g. bricks, pads, dams and other larger precast shapes). The service life of the products that Advanced Refractories supplies into the steel making process can vary (some a matter of hours and others for a period of years) based upon the type of refractory and the level of wear caused by the demanding environment in which they are used. An integral part of our success depends upon our best-in-class installation technologies (including robots) and lasers to track the performance of installed Vesuvius' refractories as well as the strong level of collaboration with our customers.

Steel Advanced Refractories Revenue	**H1 2019 (£m)**	**H1 2018 (£m)**	**Change (%)**	**Underlying change (%)**
Americas	89.6	81.9	+9.3%	+7.6%
Europe, Middle East & Africa (EMEA)	125.8	129.8	-3.1%	-2.5%
Asia-Pacific	61.2	55.2	+11.0%	+10.5%
Total Steel Advanced Refractories Revenue	**276.6**	**266.9**	**+3.6%**	**+3.2%**

Steel Advanced Refractories reported revenues of £276.6m in H1 2019, an increase of 3.6% compared to H1 2018 on a reported basis, and 3.2% on an underlying basis. This positive performance was supported by market share gains in USA, China and South East Asia, selling price increases to offset raw material and other cost inflation, as well as the CCPI acquisition.

We achieved underlying revenue growth in the Americas of 7.6% and Asia-Pacific of 10.5%. The growth in NAFTA was due to the CCPI acquisition, market share gains and selling price increases to offset raw material and other cost inflation. These positives were partially offset by lower revenue in South America due to weak market conditions. The strong market outperformance in Asia-Pacific was due to increased penetration of our value-creating solutions in China, Vietnam and Indonesia. However, we slightly underperformed the market in EMEA due in part to priority being given to return on sales.

Digital Services

The Digital Services business unit offers digital products to our customers to enable them to make their underlying processes more efficient and reliable. Digital Services focuses on providing products that enhance the control and monitoring of our customers' production processes, complementing Vesuvius' strong presence and expertise in molten metal engineering to create new technologies and integrate them into expert process management systems. The products provided by Digital Services include temperature sensors, oxygen, hydrogen and sublance probes, iron oxide and metal sampling for the steel, aluminium and foundry industries. By using these technologies customers can focus on critical parameters within their processes, enabling them to refine their production methods to improve quality, lower production costs and maximise efficiency.

Digital Services Revenue	H1 2019 (£m)	H1 2018 (£m)	Change (%)	Underlying change (%)
Americas	10.1	10.3	-1.2%	+2.4%
Europe, Middle East & Africa (EMEA)	5.2	6.8	-23.5%	-22.9%
Asia-Pacific	0.1	0.1	-52.3%	-52.5%
Total Digital Services Revenue	**15.4**	**17.2**	**-10.4%**	**-8.2%**

Digital Services generated revenue of £15.4m in H1 2019, a decrease of 10.4% year-on-year on a reported basis. On an underlying basis, revenues decreased 8.2%. This decline in sales reflects the challenging market environment in particular in EMEA.

Foundry Division

The Foundry Division is a world leader in the supply of consumable products, technical advice and application support to improve the performance and quality of ferrous and non-ferrous castings. Vesuvius operates under the brand FOSECO in the foundry market. The foundry process is highly sequential and is critically dependent on consistency of product quality and productivity optimisation. Working alongside customers at their sites, our engineers provide on-site technical expertise in addition to advanced computational fluid dynamics capabilities to develop the best customised solutions. The conditioning of molten metal, the nature of the mould used and, especially, the design of the way metal flows into the mould are key parameters in a foundry, determining both the quality of the finished castings and the labour, energy and metal usage efficiency of the foundry. Vesuvius' products and associated services to foundries improve these parameters.

Foundry Division	H1 2019 (£m)	H1 2018 (£m)	Change (%)	Underlying change (%)
Foundry Revenue	274.5	286.1	-4.0%	-4.1%
Foundry Trading Profit	33.6	36.6	-8.2%	-7.3%
Foundry Return on Sales	**12.2%**	***12.8%***	***-60bps***	***-40bps***

There was a challenging environment in Foundry end markets during the first half of 2019, with weakness in light vehicles in key markets including EMEA, NAFTA, China and India and in construction and agricultural equipment markets in India, South America and North Asia.

Despite this challenging environment, we were successful in increasing prices where necessary to compensate for the historic raw material and cost inflation which we highlighted in our 2018 results.

Revenue in the Foundry Division decreased 4.0% to £274.5m in the first half of 2019 on a reported basis, whilst underlying revenue decreased by 4.1%. Underlying trading profit and return on sales decreased by 7.3% and 40 basis points, respectively. Reported return on sales was 12.2% in H1 2019 compared to 12.8% in H1 2018, although this was an improvement from 11.7% in H2 2018 aided by price increases. Our performance in the first half of 2019 was impacted by weakness in key end-markets and delays in the realisation of restructuring savings in EMEA. Fused Silica, a specialised product line, also suffered from significant market weakness in the first half of the year.

Foundry Revenue	H1 2019 (£m)	H1 2018 (£m)	Change (%)	Underlying change (%)
Americas	61.2	58.1	+5.3%	+2.4%
Europe, Middle East & Africa (EMEA)	124.2	134.2	-7.4%	-5.4%
Asia-Pacific	89.1	93.8	-5.0%	-6.3%
Total Foundry Revenue	**274.5**	**286.1**	**-4.0%**	**-4.1%**

In the Americas, underlying revenue increased 2.4% supported by growth in the heavy truck market as well as selling price increases to offset raw material and other cost inflation. We were successful in gaining market share in South America. Underlying revenues in EMEA decreased 5.4% year-on-year as a result of the challenging market environment, with weakness in the light vehicle end-market in particular. In Asia-Pacific as a whole, underlying revenue decreased by 6.3%. Our revenues in China were down c.8%, due to weak end-market conditions, particularly in light vehicles. In India our revenues were down 3% due to weaknesses in all Foundry end-markets. In North Asia we have experienced weak end-markets in mining, construction and agricultural equipment.

Financial Review

The following review considers a number of our financial KPIs and sets out other relevant financial information.

Basis of Preparation

We have continued to adopt a columnar presentation format for our accounts separately identifying headline performance results, as we consider that this gives a better view of the underlying results of the ongoing business.

Dividend

The Board has declared an interim dividend of 6.2 pence per share to be paid on 20 September 2019 to shareholders on the register at 9 August 2019.

It remains the Board's intention to deliver long-term dividend growth, provided this is supported by underlying earnings, cash flows, capital expenditure requirements and the prevailing market outlook.

Key Performance Indicators

We have identified a number of KPIs against which we have consistently reported. As with prior years, we measure our results on an underlying basis, where we adjust to ensure appropriate comparability between periods, irrespective of currency fluctuations and any business acquisitions and disposals.

This is done by:

- Restating the previous period's results at the same foreign exchange (FX) rates used in the current period
- Removing the results of disposed businesses in both the current and prior years
- Removing the results of acquired businesses in both the current and prior years

Therefore, for 2019, we have:

- Retranslated 2018 results at the FX rates used in calculating the 2019 results
- Removed the results of the BMI refractory installation business, which was disposed of during 2018
- Removed the results of CCPI, which was acquired during 2019

Objective: Deliver growth

KPI: Underlying revenue growth

Reported revenue for H1 2018 was £897.0m, which after FX translation effects and removing the impact of disposed businesses, equated to £889.1m on an underlying basis. The reported revenue for H1 2019 of £889.4m, which after removing the impact of acquired businesses equated to £879.7m, is a decrease on an underlying basis of 1.1% year-on-year. The decline has been primarily as a result of weaker end-market demand as global steel production and key Foundry end markets fell during the year.

£m	**H1 2019 Revenue**			H1 2018 Revenue				% change	
	As reported	Acquisition /Disposals	Underlying	As reported	Currency	Acquisition /Disposals	Underlying	Reported	Underlying
Steel	**614.9**	**(9.7)**	**605.2**	610.9	3.1	(11.1)	602.9	0.6%	0.4%
Foundry	**274.5**	**-**	**274.5**	286.1	0.1	-	286.2	(4.0%)	(4.1%)
Total Group	**889.4**	**(9.7)**	**879.7**	897.0	3.2	(11.1)	889.1	(0.9%)	(1.1%)

Objective: Generate sustainable profitability and create shareholder value

KPI: Trading profit and return on sales

We continue to measure underlying trading profit of the Group as well as trading profit as a percentage of sales, which we refer to as our Return on Sales or RoS.

Trading profit of £98.9m in H1 2019 decreased by 0.5% on an underlying basis versus H1 2018 whilst RoS was 11.1%, in line with H1 2018. The reduction in trading profit is due in part to the lower revenues, partially offset by cost savings measures and the ongoing delivery of benefits from the restructuring programme.

The Steel Division recorded RoS of 10.6%, an increase from 10.3% in H1 2018 and 10.4% for full year 2018. Foundry reported a 12.2% RoS (2018: half year 12.8%; full year 12.3%).

£m	**H1 2019 Trading profit**			H1 2018 Trading profit				% change	
	As reported	Acquisition/ Disposals	Underlying	As reported	Currency	Acquisition/ Disposals	Underlying	Reported	Underlying
Steel	**65.3**	**(0.8)**	**64.5**	63.0	(0.4)	(0.2)	62.4	3.7%	3.3%
Foundry	**33.6**	**-**	**33.6**	36.6	(0.4)	-	36.2	(8.2%)	(7.3%)
Total Group	**98.9**	**(0.8)**	**98.1**	99.6	(0.8)	(0.2)	98.6	(0.7%)	(0.5%)

KPI: Headline PBT and Headline EPS

Headline profit before tax (PBT) and headline earnings per share (EPS) are used to measure the underlying financial performance of the Group. The main difference between trading profit and PBT is net finance costs.

Net finance costs in H1 2019 of £6.2m were £1.4m higher than H1 2018. The increase in finance costs was largely due to changes in accounting treatment following the introduction of IFRS 16, additional drawings on our central debt facilities, and the impact of foreign exchange on interest payable on the US Private Placement notes ('USPPs').

Our Headline PBT was £93.2m in H1 2019, 4.3% below last year on a reported basis. Including amortisation (£5.0m) and restructuring charges (£10.7m), our PBT of £78.6m was 10.5% lower than H1 2018. Headline EPS from continuing operations at 23.7p is 6.7% lower than H1 2018.

KPI: Return on net assets (RONA)

RONA is our principal measure of capital efficiency. We do not exclude the results of businesses acquired and disposed from this calculation, as capital efficiency is an important consideration in our portfolio decisions. It is calculated by dividing trading profit plus our share of profits from joint ventures by our average operating assets (property, plant and equipment, and trade working capital).

As with most of our KPIs, we measure this on a 12-month moving average basis at constant currency to ensure that we focus on sustainable underlying improvements. Our RONA for H1 2019 was 28.5% (2018: half year 27.3%; full year 29.9%).

Objective: Maintain strong cash generation and an efficient capital structure

KPI: Free cash flow and working capital

Fundamental to ensuring that we have adequate capital to execute our corporate strategy is converting our profits into cash, partly through strict management of our working capital. Free cash flow from continuing operations was £43.4m in H1 2019 (2018: half year £42.1m). Our cash conversion in H1 2019 was 83% (2018: half year 77%; full year 91%).

We measure working capital both in terms of actual cash flow movements, and as a percentage of sales revenue. Trade working capital as a percentage of sales in H1 2019 was 23.9% (2018: half year 24.1%; full year 23.9%), measured on a 12-month moving average basis. In absolute terms on a constant currency basis, and excluding acquisition balances from

CCPI, trade working capital increased by £10.2m in H1 2019 due largely to inventory build-up for restructuring and the European summer period.

Operating cash flow and cash conversion

	Unaudited half year 2019	Unaudited half year 2018	Full year 2018
	£m	£m	£m
Cash generated from continuing operations	**101.7**	77.0	195.3
Add: Outflows relating to restructuring charges	**5.8**	10.4	19.3
Add: Net retirement benefit obligations	**1.4**	(0.1)	3.4
Less: Capital expenditure	**(28.7)**	(11.6)	(41.2)
Add: Proceeds from the sale of property, plant and equipment	**1.6**	1.0	2.6
Operating cash flow	**81.8**	76.7	179.4
Trading profit	**98.9**	99.6	197.2
Cash conversion	**83%**	77%	91%

KPI: Interest cover and net debt

As at 30 June 2019, the Group had committed borrowing facilities of £623.0m (2018: half year £566.4m; full year £573.7m), of which £132.7m was undrawn (2018: half year £117.1m; full year £119.2m).

Net Debt at 30 June 2019 increased to £307.0m, versus £248.0m at year-end 2018 as Free Cash Flow of £43.4m was offset by items including a £37.2m final dividend payment for 2018 and the £32.4m acquisition of CCPI. Net debt was also increased by an adjustment of £29.6m to reflect the reclassification of leases under IFRS 16. The weighted average maturity of Vesuvius' committed debt facilities now stands at approximately four years.

The Group's debt facilities have two financial covenants: the ratios of net debt to EBITDA (maximum three times limit) and EBITDA to interest (minimum four times limit). These ratios are monitored regularly to ensure that the Group has sufficient financing available to run the business and fund future growth. At H1 2019, the net debt to EBITDA ratio was 1.3x (2018: half year 1.3x; full year 1.0x) and EBITDA to interest was 21.4x (2018: half year 20.2x; full year 22.8x). Net debt calculations for bank covenant purposes exclude the impact of changes to IFRS 16 and will, consequently, be lower.

Objective: Be at the forefront of innovation

KPI: R&D Spend

We believe that our market-leading product technology and services deliver fundamental value to our customers and that the primary mechanism to deliver that value is to invest significantly in research and development. In H1 2019, we spent £14.9m (2018: half year £16.8m; full year £33.6m) on R&D activities, which represents 1.7% of our revenue (2018: half year 1.9%; full year 1.9%).

Financial Risk Factors

The Group undertakes regular risk reviews and, as a minimum, a full risk assessment process twice a year. As in previous years this included input from the Board in both the assessment of risk and the proposed mitigation. As referred to in our Principal Risks and Uncertainties, we consider the main financial risks faced by the Group as being those posed by a decline in our end markets, leading to reduced revenue and profit as well as potential customer default. We also monitor carefully the challenges that come from broader financial uncertainty, which could bring lack of liquidity and market volatility. Important but lesser risk exists in interest rate movements, foreign exchange and cost inflation, but these are not expected to have a material impact on the business after considering the controls we have in place.

Our key mitigation of end market risk is to manage the Group's exposure through balancing our portfolio of business geographically and to invest in product innovation. We do so through targeted capital investment in new and growing businesses and a combination of capital and human resource in emerging markets. When considering other financial risks we mitigate liquidity concerns by financing using both the bank and private placement markets. The Group also seeks to avoid a concentration of debt maturities in any one period to spread its refinancing risk. The Group's undrawn committed bank facilities at 30 June 2019 were £132.7m. Counterparty risk and customer default are mitigated by our relatively widespread customer base – with no customer being greater than 10% of revenue – and credit control procedures.

Restructuring

We continued to progress with the implementation of our previously announced restructuring programmes, with £5.8m of incremental savings delivered in 2019. In H1 2019, we reported £10.7m of restructuring costs (2018: half year nil; full year £15.3m) within separately reported items that were predominantly made up of redundancy, plant closure costs and asset write-offs. The cash costs in H1 2019 were £5.8m (2018: half year £10.4m; full year £19.3m). We are carrying forward into H2 2019 a restructuring provision of £19.9m.

Taxation

A key measure of tax performance is the effective tax rate, which the Group calculates on the income tax associated with headline performance, divided by the headline profit before tax and before the Group's share of post-tax profit of joint ventures. The Group's effective tax rate was in-line with expectations at 28.0% in H1 2019 (2018: half year 26.0%; full year 26.0%) based on the income tax costs associated with headline performance of £26.0m (2018: half year £24.6m; full year £48.4m).

Capital expenditure

Capital expenditure in H1 2019 of £23.6m (2018: half year £12.7m; full year £48.4m) comprised £17.1m in the Steel Division (2018: half year £10.1m; full year £34.4m) and £6.5m in the Foundry Division (2018: half year £2.6m; full year £14.0m). Capital expenditure on revenue-generating customer installation assets, primarily in Steel, was £3.5m (2018: half year £4.0m; full year £7.7m).

Pensions

The Group has a limited number of historical defined benefit plans located mainly in the UK, USA, Germany and Belgium. The main plans in the UK and USA are largely closed to further benefits accrual and 58.4% of the liabilities in the UK have already been insured. The total net deficit attributed to these defined benefit obligations at 30 June 2019 was £14.8m (2018: half year £8.3m; full year £15.3m), representing an improvement since 31 December 2018 of £0.5m. The improvement was driven by £4.4m from cash contributions and payments of unfunded benefits; offset by additional accrual and administrative expenditure paid for the half year of £3.0m, actuarial losses of £0.5m, foreign exchange losses of £0.3m and interest of £0.1m.

The majority of the ongoing pension plans are defined contribution plans, where our only obligation is to make contributions, with no further commitments on the level of post-retirement benefits. During H1 2019, cash contributions of £6.0m (2018: half year £5.6m; full year £11.4m) were made into the defined contribution plans and charged to trading profit.

Corporate Activity

On 1 March 2019, the Group acquired CCPI Inc, a specialty refractory producer in Ohio, USA for cash consideration of £33.3m. The company is part of the Group's Advanced Refractories business unit. The acquisition increased Vesuvius' share of the tundish market and gave the Group entry to the aluminium market.

In June 2019, the Group disposed of its 50% interest in Angang Vesuvius Refractory Company Ltd for a cash consideration of £6.9m, resulting in a profit after foreign currency adjustments of £1.1m.

Principal Risks and Uncertainties

Risk Management
The Board's oversight of principal risks involves a specific review of the processes by which the Group manages those risks. This establishes a clear understanding at Board level of the individuals and groups in the business formally responsible for the management of specific risks and the mitigation in place to address them. The Board also establishes the Group's risk appetite, considering the nature and extent of the principal risks that the Group should take.

The Board has overall responsibility for establishing and maintaining a system of risk management and internal control, and for reviewing its effectiveness. The Group undertakes a continuous process of risk identification and review, which includes a formal process, conducted annually for mapping risks from the bottom-up, with each major business unit, and key operational, senior functional and senior management staff identifying their principal risks. This assessment undergoes a formal review at half year. The results are compiled centrally to deliver a coordinated picture of the key operational risks identified by the business. In conjunction with this, each Director contributes their individual views of top-down strategic risks facing the Group - drawing on the broad commercial and financial experience gained both inside and outside the Group. This review process extends to cover both financial and non-financial risks, and considers the risks associated with the impact of the Group's activities on employees, customers, suppliers, the environment, local communities and society more generally. As in previous years, in 2019 the Group's assessment of principal risks was also reviewed and considered against this group of emerging risks and uncertainties identified through our Board review process.

Risk Mitigation
The risks identified are actively managed in order to mitigate exposure. Senior management 'owners' are identified for each principal risk to manage the mitigations of that specific risk and contribute to the analysis of its likelihood and materiality. This is reported to the Board. The risks are analysed in the context of our business structure which gives protection against a number of principal risks we face with diversified currencies, a widespread customer base, local production matching the diversity of our markets and intensive training of our employees. Additionally, we seek to mitigate risk through contractual measures. Where cost-effective, the risk is transferred to insurers.

Principal Risks
The risks identified are those the Board considers to be the most relevant to the Group in relation to their potential impact on the achievement of its strategic objectives. All of the risks could materially affect the Group, its businesses, future operations and financial condition and could cause actual results to differ materially from expected or historical results. These risks are not the only ones that the Group will face. Some risks are not yet known and some currently not deemed to be material could become so.

Changes to Risk in 2019
The Board believes that there has been no material change to the Group's principal risks and uncertainties during the year.

The Board continues to monitor the implications of certain emerging 'macro' trends such as automation in manufacturing, the increased focus on sustainability and increasing digitalisation, each of which could act as disruptors to industry. Work has continued in 2019 to reinvigorate the Values of the Group. These underpin our performance culture, reflecting the Board's understanding of the challenges that could arise from a failure by the Group to foster the correct culture for success.

In addition to these wider trends, the Board continued to focus on specific, identifiable risks where those arose during the year – the supply of quality raw materials and the potentially disruptive effects on global trade from increasing geopolitical tensions, which are noted in the table of Principal risks and uncertainties. The Board remains alive to the challenges that come from a slowdown in trade.

Finally, the Board continued to monitor the developing issues posed by cyber threats and received reports from the Group's multi-disciplinary committee appointed to assess the Group's controls in this area and respond to emerging cyber trends. As discussed, above the Directors' views on each of the above issues, and on emerging risks in general were independently gathered and integrated into the management discussions and actions taken on risk.

Brexit
Whilst at the time of writing the terms and timing of the exit of the UK from the EU remain uncertain, Vesuvius has analysed the potential challenges posed by Brexit, including a 'no-deal' or 'hard' Brexit, and identified mitigation strategies to address those challenges.

For our customers located in the EU27 countries, most of our products are manufactured by Vesuvius outside the UK, so we would not envisage a material impact from Brexit. For those customers located in the UK or located in the EU27 and supplied from our UK plants, we have contingency plans and we are working with these customers to meet their needs in a cost-efficient way.

Principal risks and uncertainties:

Risk	Potential impact	Mitigation
End market risks *Vesuvius suffers an unplanned drop in demand, revenue and/or margin because of market volatility beyond its control*	• Unplanned drop in demand and/or revenue due to reduced production by our customers • Margin reduction • Customer failure leading to increased bad debts • Loss of market share to competition • Cost pressures at customers leading to use of cheaper solutions	• Geographic diversification of revenues • Product innovation and service offerings securing long-term revenue streams and maintaining performance differential • Increase in service and product lines by the development of the Technical Services offering • R&D includes assessment of emerging technologies • Manufacturing capacity rationalisation and flexible cost base • Diversified customer base: no customer is greater than 10% of revenue • Robust credit and working capital control to mitigate the risk of default by counterparties
Protectionism and globalisation *The Vesuvius business model cannot adapt or respond quickly enough to threats from protectionism and globalisation*	• Restricted access to market due to enforced preference of local suppliers • Increased barriers to entry for new businesses or expansion • Increased costs from import duties, taxation or tariffs • Loss of market share • Trade restrictions	• Highly diversified manufacturing footprint with manufacturing sites located in 26 countries • Strong local management with delegated authority to run their businesses and manage customer relationships • Cost flexibility • Tax risk management and control framework together with a strong control of inter-company trading
Product quality failure *Vesuvius staff/contractors are injured at work or customers, staff or third parties suffer physical injury or financial loss because of failures in Vesuvius products*	• Injury to staff and contractors • Product or application failures lead to adverse financial impact or loss of reputation as technology leader • Incident at customer plant caused manufacturing downtime or damage to infrastructure • Customer claims from product quality issues	• Quality management programmes including stringent quality control standards, monitoring and reporting • Experienced technical staff knowledgeable in the application of our products and technology • Targeted global insurance programme • Experienced internal legal function controlling third-party contracting
Complex and changing regulatory environment *Vesuvius experiences a contracting customer base or increased transaction and administrative costs due to compliance with changing regulatory requirements*	• Revenue reduction from reduced end-market access • Disruption of supply chain and route to market • Increased internal control processes • Increased frequency of regulatory investigations • Reputational damage	• Globally disseminated Code of Conduct highlighting ethical approach to business • Compliance programmes and training across the Group • Internal Audit function • Experienced internal legal function • Global procurement category management of strategic raw materials

Failure to secure innovation *Vesuvius fails to achieve continuous improvement in its products, systems and services*	• Product substitution by customers • Increased competitive pressure through lack of differentiation of Vesuvius offering • Commoditisation of product portfolio through lack of development • Lack of response to changing customer needs • Loss of intellectual property protection	• Enduring and significant investment in R&D, with market-leading research • A shared strategy for innovation throughout the Group, deployed via our R&D centres • Stage gate process from innovation to commercialisation to foster innovation and increase alignment with strategy • Programme of manufacturing and process excellence • Quality programme, focused on quality and consistency • Stringent intellectual property registration and defence
Business interruption *Vesuvius loses production capacity or experiences supply chain disruption due to physical site damage (accident, fire, natural disaster, terrorism), industrial action or cyber attack*	• Loss of a major plant temporarily or permanently impairing our ability to serve our customers • Damage to or restriction in ability to use assets • Denial of access to critical systems or control processes • Disruption of manufacturing processes • Inability to source critical raw materials	• Diversified manufacturing footprint • Disaster recovery planning • Business continuity planning with strategic maintenance of excess capacity • Physical and IT control systems security, access and training • Cyber risks integrated into wider risk-management structure • Well-established global insurance programme • Group-wide safety management programmes • Dual sourcing strategy and development of substitutes
People, culture and performance *Vesuvius is unable to attract and retain the right calibre of staff, fails to instil an appropriate culture or fails to embed the right systems to drive personal performance in pursuit of the Group's long-term growth*	• Organisational culture of high performance is not achieved • Staff turnover in growing economies and regions • Stagnation of ideas and development opportunities • Loss of expertise and critical business knowledge • Reduced management pipeline for succession to senior positions	• Internal focus on talent development and training, with tailored career-stage programmes and clear performance management strategies • Contacts with universities to identify and develop talent • Career path planning and global opportunities for high-potential staff • Internal programmes for the structured transfer of technical and other knowledge • Clearly elucidated Values underpin business culture
Health, safety and environment *Vesuvius staff or contractors are injured at work because of failures in Vesuvius' operations, equipment or processes*	• Injury to staff and contractors • Health and safety breaches • Manufacturing downtime or damage to infrastructure from incident at plant • Inability to attract the necessary workforce • Reputational damage	• Active safety programmes, with ongoing wide-ranging monitoring and safety training • Independent safety audit team • Quality management programmes including stringent manufacturing process control standards, monitoring and reporting

Directors' responsibility statement

We confirm that to the best of our knowledge:

(a) The Condensed Group Financial Statements have been prepared in accordance with IAS 34*, Interim Financial Reporting*, as adopted by the EU; and

(b) This half-yearly financial report includes a fair review of the information required by:

- DTR 4.2.7R of the *Disclosure and Transparency Rules*, being an indication of important events that have occurred during the first six months of the financial year and their impact on the condensed set of financial statements; and a description of the principal risks and uncertainties for the remaining six months of the financial year; and
- DTR 4.2.8R of the *Disclosure and Transparency Rules*, being related parties' transactions that have taken place in the first six months of the current financial year and that have materially affected the financial position or the performance of the Group during that period; and any changes in the related parties' transactions described in the last annual report that could do so.

On behalf of the Board

Guy Young
Chief Financial Officer
24 July 2019

Vesuvius plc Board of Directors:

John McDonough CBE, Chairman
Patrick André, Chief Executive
Guy Young, Chief Financial Officer
Douglas Hurt, Non-executive Director, Senior Independent Director and Chairman of the Audit Committee
Jane Hinkley, Non-executive Director and Chairman of the Remuneration Committee
Christer Gardell, Non-executive Director
Hock Goh, Non-executive Director
Holly Koeppel, Non-executive Director

Independent review report to Vesuvius plc

Report on the Condensed Group Financial Statements

Our conclusion

We have reviewed Vesuvius plc's Condensed Group Financial Statements (the "interim financial statements") in the half year results of Vesuvius plc for the 6 month period ended 30 June 2019. Based on our review, nothing has come to our attention that causes us to believe that the interim financial statements are not prepared, in all material respects, in accordance with International Accounting Standard 34, 'Interim Financial Reporting', as adopted by the European Union and the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority.

What we have reviewed

The interim financial statements comprise:

- the Condensed Group Balance Sheet as at 30 June 2019;
- the Condensed Group Income Statement and Condensed Group Statement of Comprehensive Income for the period then ended;
- the Condensed Group Statement of Cash Flows for the period then ended;
- the Condensed Group Statement of Changes in Equity for the period then ended; and
- the explanatory notes to the Condensed Group Financial Statements.

The interim financial statements included in the half year results have been prepared in accordance with International Accounting Standard 34, 'Interim Financial Reporting', as adopted by the European Union and the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority.

As disclosed in note 1 to the interim financial statements, the financial reporting framework that has been applied in the preparation of the full annual financial statements of the Group is applicable law and International Financial Reporting Standards (IFRSs) as adopted by the European Union.

Responsibilities for the interim financial statements and the review

Our responsibilities and those of the Directors

The half year results, including the interim financial statements, is the responsibility of, and has been approved by, the Directors. The Directors are responsible for preparing the half year results in accordance with the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority.

Our responsibility is to express a conclusion on the interim financial statements in the half year results based on our review. This report, including the conclusion, has been prepared for and only for the company for the purpose of complying with the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority and for no other purpose. We do not, in giving this conclusion, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

What a review of interim financial statements involves

We conducted our review in accordance with International Standard on Review Engagements (UK and Ireland) 2410, 'Review of Interim Financial Information Performed by the Independent Auditor of the Entity' issued by the Auditing Practices Board for use in the United Kingdom. A review of interim financial information consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures.

A review is substantially less in scope than an audit conducted in accordance with International Standards on Auditing (UK) and, consequently, does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

We have read the other information contained in the half year results and considered whether it contains any apparent misstatements or material inconsistencies with the information in the interim financial statements.

PricewaterhouseCoopers LLP
Chartered Accountants
London
24 July 2019

Condensed Group Income Statement
For the six months ended 30 June 2019

		Half year 2019 (Unaudited)			Half year 2018 (Unaudited)			Full year 2018		
		Headline performance[(1)]	**Separately reported items[(1)]**	**Total**	Headline performance[(1)]	Separately reported items[(1)]	Total	Headline performance[(1)]	Separately reported items[(1)]	Total
Continuing operations	Notes	**£m**	**£m**	**£m**	£m	£m	£m	£m	£m	£m
Revenue	2	**889.4**	**-**	**889.4**	897.0	-	897.0	**1,798.0**	**-**	**1,798.0**
Manufacturing costs		**(635.3)**	**-**	**(635.3)**	(637.8)	-	(637.8)	**(1,291.2)**	**-**	**(1,291.2)**
Administration, selling & distribution costs		**(155.2)**	**-**	**(155.2)**	(159.6)	-	(159.6)	**(309.6)**	**-**	**(309.6)**
Trading profit	2, 16	**98.9**	**-**	**98.9**	99.6	-	99.6	**197.2**	**-**	**197.2**
Amortisation of acquired intangible assets		**-**	**(5.0)**	**(5.0)**	-	(9.6)	(9.6)	**-**	**(12.9)**	**(12.9)**
Restructuring charges	3	**-**	**(10.7)**	**(10.7)**	-	-	-	**-**	**(15.3)**	**(15.3)**
GMP equalisation charge		**-**	**-**	**-**	-	-	-	**-**	**(4.5)**	**(4.5)**
Operating profit/(loss)	2	**98.9**	**(15.7)**	**83.2**	99.6	(9.6)	90.0	**197.2**	**(32.7)**	**164.5**
Finance expense		**(9.7)**	**-**	**(9.7)**	(7.0)	-	(7.0)	**(16.7)**	**-**	**(16.7)**
Finance income		**3.5**	**-**	**3.5**	2.2	-	2.2	**5.6**	**-**	**5.6**
Net finance costs	4	**(6.2)**	**-**	**(6.2)**	(4.8)	-	(4.8)	**(11.1)**	**-**	**(11.1)**
Share of post-tax income of joint ventures		**0.5**	**1.1**	**1.6**	2.6	-	2.6	**2.8**	**-**	**2.8**
Profit/(loss) before tax	2	**93.2**	**(14.6)**	**78.6**	97.4	(9.6)	87.8	**188.9**	**(32.7)**	**156.2**
Income tax (charge)/credits	5	**(26.0)**	**3.2**	**(22.8)**	(24.6)	6.3	(18.3)	**(48.4)**	**36.8**	**(11.6)**
Profit/(loss) from:										
Continuing operations		**67.2**	**(11.4)**	**55.8**	72.8	(3.3)	69.5	**140.5**	**4.1**	**144.6**
Discontinued operations		**-**	**-**	**-**	-	0.5	0.5	**-**	**0.5**	**0.5**
Profit/(loss)		**67.2**	**(11.4)**	**55.8**	72.8	(2.8)	70.0	**140.5**	**4.6**	**145.1**
Profit/(loss) attributable to:										
Owners of the parent		**63.8**	**(11.4)**	**52.4**	68.7	(2.8)	65.9	**133.7**	**4.6**	**138.3**
Non-controlling interests		**3.4**	**-**	**3.4**	4.1	-	4.1	**6.8**	**-**	**6.8**
Profit/(loss)		**67.2**	**(11.4)**	**55.8**	72.8	(2.8)	70.0	**140.5**	**4.6**	**145.1**
Earnings per share — pence	6									
Continuing operations — basic				**19.5**			24.2			**51.1**
— diluted				**19.3**			24.1			**50.8**
Total operations — basic				**19.5**			24.4			**51.3**
— diluted				**19.3**			24.2			**51.0**

(1) Headline performance is defined in Note 16.1 and separately reported items are defined in Note 1.5.

Condensed Group Statement of Comprehensive Income

For the six months ended 30 June 2019

	Notes	**Unaudited Half year 2019 £m**	Unaudited Half year 2018 £m	Full year 2018 £m
Profit		**55.8**	70.0	145.1
Items that will not be reclassified subsequently to income statement:				
Remeasurement of defined benefit assets/liabilities		**(0.5)**	8.3	5.1
Income tax relating to items not reclassified	5	**1.1**	(1.2)	6.0
Items that may be reclassified subsequently to income statement:				
Exchange differences on translation of the net assets of foreign operations		**7.6**	(17.9)	11.1
Reclassification of foreign currency translation reserve on disposal of share in joint venture	13	**(1.1)**	-	-
Exchange differences arising on translation of net investment hedges		**(0.4)**	(3.3)	(11.5)
Other comprehensive income (loss), net of income tax		**6.7**	(14.1)	10.7
Total comprehensive income		**62.5**	55.9	155.8
Total comprehensive income attributable to:				
Owners of the parent		**58.4**	53.7	149.3
Non-controlling interests		**4.1**	2.2	6.5
Total comprehensive income		**62.5**	55.9	155.8
Total comprehensive income attributable to owners of the parent arises from:				
Continuing operations		**58.4**	53.2	148.8
Discontinued operations		**-**	0.5	0.5
Total comprehensive income attributable to owners of the parent		**58.4**	53.7	149.3

Condensed Group Statement of Cash Flows

For the six months ended 30 June 2019

	Notes	**Unaudited Half year 2019 £m**	Unaudited Half year 2018 £m	Full year 2018 £m
Cash flows from operating activities				
Cash generated from operations	9	**101.7**	76.9	195.2
Interest paid		**(8.7)**	(7.4)	(16.3)
Interest received		**2.7**	2.5	4.8
Net interest paid		**(6.0)**	(4.9)	(11.5)
Income taxes paid		**(25.6)**	(19.5)	(41.8)
Net cash inflow from operating activities		**70.1**	52.5	141.9
Cash flows from investing activities				
Capital expenditure		**(28.7)**	(11.6)	(41.2)
Proceeds from the sale of property, plant and equipment		**1.6**	1.0	2.6
Acquisition of subsidiaries and joint ventures, net of cash acquired	13	**(32.4)**	(0.4)	(1.0)
Dividends received from joint ventures		**0.1**	1.3	1.2
Net cash outflow from investing activities		**(59.4)**	(9.7)	(38.4)
Net cash inflow before financing activities		**10.7**	42.8	103.5
Cash flows from financing activities				
Proceeds from borrowings	8	**49.0**	35.9	34.9
Repayment of borrowings	8	**(14.7)**	(1.8)	(1.6)
Settlement of forward foreign exchange contracts		**(1.7)**	0.3	1.8
Purchase of ESOP Shares		**-**	(8.3)	(13.4)
Dividends paid to equity shareholders	7	**(37.2)**	(33.8)	(50.0)
Dividends paid to non-controlling shareholders		**(1.1)**	(1.0)	(1.9)
Net cash outflow from financing activities		**(5.7)**	(8.7)	(30.2)
Net increase in cash and cash equivalents	8	**5.0**	34.1	73.3
Cash and cash equivalents at 1 January		**213.4**	140.0	140.0
Effect of exchange rate fluctuations on cash and cash equivalents		**0.7**	(2.7)	0.1
Cash and cash equivalents at 30 June		**219.1**	171.4	213.4
Free cash flow from continuing operations (Note 16.10)				
Net cash inflow from operating activities		**70.1**	52.6	142.0
Net retirement benefit obligations		**1.4**	(0.1)	3.4
Capital expenditure		**(28.7)**	(11.6)	(41.2)
Proceeds from the sale of property, plant and equipment		**1.6**	1.0	2.6
Dividends received from joint ventures		**0.1**	1.3	1.2
Dividends paid to non-controlling shareholders		**(1.1)**	(1.0)	(1.9)
Free cash flow from continuing operations	16	**43.4**	42.2	106.1
Discontinued operations		**-**	(0.1)	(0.1)
Free cash flow	16	**43.4**	42.1	106.0

Condensed Group Balance Sheet

As at 30 June 2019

	Notes	**Unaudited Half year 2019 £m**	Unaudited Half year 2018 £m	Full year 2018 £m
Assets				
Property, plant and equipment		**352.5**	297.5	**313.9**
Intangible assets		**765.4**	729.7	**741.4**
Employee benefits - surpluses	10	**101.5**	98.2	**90.8**
Interests in joint ventures and associates		**12.9**	19.0	**19.1**
Investments		**1.3**	1.4	**1.0**
Income tax recoverable		**-**	0.4	**-**
Deferred tax assets		**90.3**	64.4	**94.5**
Other receivables		**22.8**	30.3	**30.1**
Derivative financial instruments	15	**-**	0.3	**0.7**
Total non-current assets		**1,346.7**	1,241.2	**1,291.5**
Cash and short-term deposits	8	**230.0**	193.0	**236.9**
Inventories		**254.5**	254.4	**244.3**
Trade and other receivables		**461.4**	446.0	**440.4**
Income tax recoverable		**1.4**	3.8	**2.8**
Derivative financial instruments	15	**-**	0.1	**0.1**
Assets classified as held for sale		**-**	-	**1.7**
Total current assets		**947.3**	897.3	**926.2**
Total assets		**2,294.0**	2,138.5	**2,217.7**
Equity				
Issued share capital		**27.8**	27.8	**27.8**
Retained earnings		**2,478.6**	2,402.9	**2,460.0**
Other reserves		**(1,363.0)**	(1,388.7)	**(1,369.5)**
Equity attributable to the owners of the parent		**1,143.4**	1,042.0	**1,118.3**
Non-controlling interests		**53.0**	46.6	**50.0**
Total equity		**1,196.4**	1,088.6	**1,168.3**
Liabilities				
Interest-bearing borrowings	8	**468.6**	451.5	**455.5**
Employee benefits - liabilities	10	**116.3**	106.5	**106.1**
Other payables		**16.0**	17.0	**16.1**
Provisions	14	**32.5**	35.4	**38.8**
Deferred tax liabilities		**40.8**	41.5	**38.7**
Total non-current liabilities		**674.2**	651.9	**655.2**
Interest-bearing borrowings	8	**68.4**	23.3	**29.4**
Trade and other payables		**310.9**	316.0	**311.8**
Income tax payable		**19.2**	37.2	**29.3**
Provisions	14	**24.8**	21.4	**23.1**
Derivative financial instruments	15	**0.1**	0.1	**0.6**
Total current liabilities		**423.4**	398.0	**394.2**
Total liabilities		**1,097.6**	1,049.9	**1,049.4**
Total equity and liabilities		**2,294.0**	2,138.5	**2,217.7**

Condensed Group Statement of Changes in Equity

For the six months ended 30 June 2019

	Issued share capital £m	Other reserves £m	Retained earnings £m	Owners of the parent £m	Non-controlling interests £m	Total equity £m
As at 1 January 2018	**27.8**	**(1,369.4)**	**2,370.3**	**1,028.7**	**45.4**	**1,074.1**
Profit	**-**	**-**	**65.9**	**65.9**	**4.1**	**70.0**
Remeasurement of defined benefit liabilities/assets	-	-	8.3	8.3	-	8.3
Income tax relating to items not reclassified	-	-	(1.2)	(1.2)	-	(1.2)
Exchange differences on translation of the net assets of foreign operations	-	(16.0)	-	(16.0)	(1.9)	(17.9)
Exchange differences on translation of net investment hedges	-	(3.3)	-	(3.3)	-	(3.3)
Other comprehensive income/(loss), net of income tax	**-**	**(19.3)**	**7.1**	**(12.2)**	**(1.9)**	**(14.1)**
Total comprehensive income (loss)	**-**	**(19.3)**	**73.0**	**53.7**	**2.2**	**55.9**
Purchase of ESOP shares[1]	-	-	(8.3)	(8.3)	-	(8.3)
Recognition of share-based payments	-	-	1.7	1.7	-	1.7
Dividends paid (Note 7)	-	-	(33.8)	(33.8)	(1.0)	(34.8)
Total transactions with owners	**-**	**-**	**(40.4)**	**(40.4)**	**(1.0)**	**(41.4)**
As at 30 June 2018	**27.8**	**(1,388.7)**	**2,402.9**	**1,042.0**	**46.6**	**1,088.6**
Profit	**-**	**-**	**72.4**	**72.4**	**2.7**	**75.1**
Remeasurement of defined benefit liabilities/assets	-	-	(3.2)	(3.2)	-	(3.2)
Income tax relating to items not reclassified	-	-	7.2	7.2	-	7.2
Exchange differences on translation of the net assets of foreign operations	-	27.4	-	27.4	1.6	29.0
Exchange differences on translation of net investment hedges	-	(8.2)	-	(8.2)	-	(8.2)
Other comprehensive income/(loss), net of income tax	**-**	**19.2**	**4.0**	**23.2**	**1.6**	**24.8**
Total comprehensive income (loss)	**-**	**19.2**	**76.4**	**95.6**	**4.3**	**99.9**
Purchase of ESOP shares[1]	-	-	(5.1)	(5.1)	-	(5.1)
Recognition of share-based payments	-	-	2.0	2.0	-	2.0
Dividends paid (Note 7)	-	-	(16.2)	(16.2)	(0.9)	(17.1)
Total transactions with owners	**-**	**-**	**(19.3)**	**(19.3)**	**(0.9)**	**(20.2)**
As at 1 January 2019 – as reported	**27.8**	**(1,369.5)**	**2,460.0**	**1,118.3**	**50.0**	**1,168.3**

Condensed Group Statement of Changes in Equity (continued)

For the six months ended 30 June 2019

	Issued share capital £m	Other reserves £m	Retained earnings £m	Owners of the parent £m	Non-controlling interests £m	Total equity £m
As at 1 January 2019 – as reported	**27.8**	**(1,369.5)**	**2,460.0**	**1,118.3**	**50.0**	**1,168.3**
Restatement upon adoption of IFRIC 23 (note 1.6)	-	-	1.6	1.6	-	1.6
As at 1 January 2019 – restated	**27.8**	**(1,369.5)**	**2,461.6**	**1,119.9**	**50.0**	**1,169.9**
Profit	**-**	**-**	**52.4**	**52.4**	**3.4**	**55.8**
Remeasurement of defined benefit liabilities/assets	-	-	(0.5)	(0.5)	-	(0.5)
Income tax relating to items not reclassified	-	-	1.1	1.1	-	1.1
Exchange differences on translation of the net assets of foreign operations	-	6.9	-	6.9	0.7	7.6
Reclassification of foreign currency translation reserve on disposal of share in joint venture	-	-	(1.1)	(1.1)	-	(1.1)
Exchange differences on translation of net investment hedges	-	(0.4)	-	(0.4)	-	(0.4)
Other comprehensive income/(loss), net of income tax	**-**	**6.5**	**(0.5)**	**6.0**	**0.7**	**6.7**
Total comprehensive income/(loss)	**-**	**6.5**	**51.9**	**58.4**	**4.1**	**62.5**
Recognition of share-based payments	-	-	2.3	2.3	-	2.3
Dividends paid (Note 7)	-	-	(37.2)	(37.2)	(1.1)	(38.3)
Total transactions with owners	**-**	**-**	**(34.9)**	**(34.9)**	**(1.1)**	**(36.0)**
As at 30 June 2019	**27.8**	**(1,363.0)**	**2,478.6**	**1,143.4**	**53.0**	**1,196.4**

[1] During the period from 1 January 2018 to 30 June 2018, 1,385,000 Vesuvius plc ordinary shares were purchased into the Group Employee Share Ownership Plan ('ESOP'), by Cookson Investments (Jersey) Limited as Trustee of the ESOP, for £8.3m. There were no share purchases in the period to 30 June 2019.

Notes to the Condensed Group Financial Statements

1 Basis of preparation

1.1 Basis of accounting

These Condensed Group Financial Statements of Vesuvius plc ("Vesuvius" or the "Company") and its subsidiary and joint venture companies (the "Group") have been prepared in accordance with International Accounting Standard ("IAS") 34 Interim Financial Reporting, as adopted by the EU and in accordance with the Disclosure and Transparency Rules of the UK's Financial Conduct Authority.

These Condensed Group Financial Statements have been prepared using the same accounting policies as used in the preparation of the Group's annual financial statements for the year ended 31 December 2018 except for the adoption of IFRS 16 and IFRIC 23 which are described in note 1.6. The Group's annual report and financial statements for the year ended 31 December 2018 were prepared in accordance with International Financial Reporting Standards as adopted by the EU ("IFRS"). They do not include all of the information required for full annual financial statements, and should be read in conjunction with the consolidated financial statements of the Group for the year-ended 31 December 2018. The financial information presented in this document is unaudited, but has been reviewed by the Company's auditor.

The comparative figures for the financial year ended 31 December 2018 are not the Group's statutory accounts for that financial year but have been extracted from those accounts. Those accounts have been reported on by the Company's auditor and delivered to the Registrar of Companies. The report of the auditor was unqualified, did not include reference to any matters to which the auditor drew attention by way of emphasis without qualifying its report and did not contain a statement under section 498(2) or (3) of the Companies Act 2006. These sections address whether proper accounting records have been kept, whether the Company's accounts are in agreement with those records and whether the auditor has obtained all the information and explanations necessary for the purposes of its audit.

1.2 Basis of consolidation

The Condensed Group Financial Statements incorporate the financial statements of the Company and entities controlled by the Company (its "subsidiaries"). Control exists when the Company has the power to direct the relevant activities of an entity that significantly affect the entity's return so as to have rights to the variable return from its activities. In assessing whether control exists, potential voting rights that are currently exercisable are taken into account. The results of subsidiaries acquired or disposed of during the year are included in the Condensed Group Income Statement from the effective date of acquisition or up to the effective date of disposal, as appropriate.

The principal accounting policies applied in the preparation of these Condensed Group Financial Statements are set out in the Notes. These policies have been consistently applied to all of the years presented, unless otherwise stated. Where necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with those detailed herein to ensure that the Condensed Group Financial Statements are prepared on a consistent basis. All intra-Group transactions, balances, income and expenses are eliminated on consolidation.

Non-controlling interests in the net assets of consolidated subsidiaries are identified separately from the Group's interest therein. Non-controlling interests consist of the amount of those interests at the date of the original business combination together with the non-controlling interests' share of profit or loss and each component of other comprehensive income, and dividends since the date of the combination. Total comprehensive income is attributed to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

Notes to the Condensed Group Financial Statements (continued)

1.3 Going concern

The Directors have prepared cash flow forecasts for the Group for a period at least 12 months from the date of approval of the 2019 interim financial statements. These forecasts reflect an assessment of current and future end-market conditions and their impact on the Group's future trading performance. The forecasts show that the Group will be able to operate within the current committed debt facilities and show continued compliance with the Company's financial covenants. On the basis of the exercise described above and the Group's available committed debt facilities, the Directors consider that the Group and the Company have adequate resources to continue in operational existence for a period of at least 12 months from the date of signing of these accounts. Accordingly, they continue to adopt a going concern basis in preparing the financial statements of the Group and the Company.

1.4 Functional and presentation currency

The financial statements are presented in millions of pounds sterling, which is the functional currency of the Company, and rounded to one decimal place.

1.5 Disclosure of "separately reported items"

IAS 1 Presentation of Financial Statements encourages the disclosure of additional line items and the reordering of items presented on the face of the income statement when appropriate for a proper understanding of the entity's financial performance. The Company has adopted a columnar presentation for its Condensed Group Income Statement, to separately identify headline performance results (as defined in Note 16), as the Directors consider that this gives a better view of the underlying results of the ongoing business. As part of this presentation format, the Company has adopted a policy of disclosing separately on the face of its Condensed Group Income Statement, within the column entitled 'Separately reported items', the effect of any components of financial performance for which the Directors consider separate disclosure would assist both in a better understanding of the financial performance achieved and in making projections of future results.

Both materiality and the nature and function of the components of income and expense are considered in deciding upon such presentation. Such items may include, inter alia, the financial effect of exceptional items which occur infrequently, such as major restructuring activity (which may take more than one year to complete), and significant movement in the Group's deferred tax balances such as was, for example, caused by the impact of US tax reform in 2017, , together with items always reported separately, such as amortisation charges relating to acquired intangible assets, profits or losses arising on the disposal of continuing or discontinued operations and the taxation impact of the aforementioned exceptional items and items reported separately. The amortisation charge in respect of intangible assets recognised on business combinations is excluded from the trading results of the Group since they are non-cash charges and are not considered reflective of the core trading performance of the Group. Some restructuring charges are excluded from the trading results of the Group due to the material nature of these non-recurring transformational initiatives. In its adoption of this policy, the Company applies an even-handed approach to both gains and losses and aims to be both consistent and clear in its accounting and disclosure of such items.

Notes to the Condensed Group Financial Statements (continued)

1.6 Changes in accounting policies

The Group has adopted IFRS 16 Leases from 1 January 2019 and, in accordance with the simplified approach, has not restated comparatives on transition. The reclassifications and adjustments arising from the new lease accounting rules are therefore recognised in the opening balance sheet on 1 January 2019.

The Group has recognised lease liabilities in relation to leases which had previously been classified as operating leases and taken the practical expedient provided for leases of low-value assets and short-term leases (shorter than twelve months). For leases that had been classified as operating leases in accordance with IAS 17, the lease liability was recognised at the present value of the remaining lease payments, discounted using the interest rate implicit in the lease, if that rate could be readily determined. If that rate cannot be readily determined, the lessee's incremental borrowing rate was used, calculated as the local government bond rate plus an interest rate spread. Net debt rose accordingly due to the increase in lease liabilities, as shown in note 15. In cases where there was an option to terminate or extend a lease, the duration of the lease assumed for this purpose reflected the Group's existing intentions regarding such options.

Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable
- variable lease payments that are based on an index or a rate
- amounts expected to be payable by the lessee under residual value guarantees
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

For leases previously classified as finance leases the entity recognised the carrying amount of the lease asset and lease liability immediately before transition as the carrying amount of the right of use asset and the lease liability at the date of initial application. The measurement principles of IFRS 16 are only applied after that date.

The right of use asset was measured at the amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to that lease recognised in the balance sheet as at 31 December 2018. There were no onerous lease contracts that would have required an adjustment to the right-of-use assets at the date of initial application. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. The recognised right of use assets relate to the following assets.

	30 June 2019	1 January 2019
	£m	£m
Leasehold Property	**22.9**	22.6
Plant and equipment	**13.8**	10.1
	36.7	32.7

The change in accounting policy affected the following items in the balance sheet on 1 January 2019.

	£m
Property, plant and equipment – increase	32.7
Trade and other receivables – decrease	(3.1)
Lease liabilities – increase	(29.6)
	-

1.6 Changes in accounting policies (continued)

The lease liabilities introduced are £9.7m less than the total operating lease commitments of £39.3m disclosed in the Annual Report and Accounts for 2018, which were prepared under IAS 17. This difference is because of low-value assets and short-term leases, for which lease assets and liabilities have not been recognised, and because the assets and liabilities recognised under IFRS 16 have been discounted whereas the operating lease commitments under IAS 17 were not.

In contrast with the previous presentation of operating lease expenses within operating profit, the Group now recognises depreciation charges on right of use assets and interest expense from unwinding of the discount on the lease liabilities. If IFRS 16 had been applied for the 2018 Annual Report and Financial Statements, operating profit and interest expense would both have been approximately £1m higher, with an insignificant impact on net profit, and operating cash flow would have been approximately £9m higher with a compensating £9m additional financing cash outflow so there would have been no impact on the net cash flow.

IFRIC 23 is operative from 1 January 2019 and clarifies how the recognition and measurement requirements of IAS 12 'Income taxes' are to be applied where there is uncertainty over income tax treatments. Following an impact assessment Vesuvius has made an adjustment to increase opening reserves in respect of tax provisions by £1.6m.

New and revised IFRS

Certain new accounting standards and interpretations have been published that are not mandatory for 30 June 2019 reporting periods and have not been early adopted by the Group. These include the new insurance standard IFRS 17 Insurance Contracts which was issued in 2017 with the effective date of 1 January 2021. The Group's assessment of the impact of these new standards and interpretations is that they are not expected to have a significant impact on the Group's financial position.

Notes to the Condensed Group Financial Statements (continued)

2 Segment information

Operating segments for continuing operations

Operating segments are reported in a manner consistent with the internal reporting provided to the Executive Directors of the Board, who make the key operating decisions and are responsible for allocating resources and assessing performance of the operating segments. Reflecting the Group's management and internal reporting structure, segmental information is presented in respect of the two main business segments: Steel and Foundry. The Steel segment aggregates the Flow Control, Advanced Refractories and Digital Services Divisions which are subject to a similar risk profile and return.

Segment revenue represents revenue from external customers (inter-segment revenue is not material). Trading profit includes items directly attributable to a segment as well as those items that can be allocated on a reasonable basis.

Revenue from contracts with customers

Revenue comprises the fair value of the consideration received or receivable for goods supplied and services rendered to customers after deducting rebates, discounts and value-added taxes, and after eliminating sales within the Group. Revenue from contracts with customers is recognised when control of the goods or services are transferred to the customer, upon the completion of specified performance obligations, at an amount that reflects the considerations to which the Group expects to be entitled to in exchange for these consumable products and associated services.

The revenue recognition policy applicable to the current and comparative periods and information about the Group's performance obligations was disclosed in Note 5 of the 2018 Annual Report and Financial Statements.

2.1 Segmental analysis

The operating segment results from continuing operations are presented below.

	Unaudited Half year 2019		
	Steel £m	**Foundry £m**	**Continuing operations £m**
Segment revenue	**614.9**	**274.5**	**889.4**
- *At a point in time*	***599.4***	***274.5***	***873.9***
- *Over time*	***15.5***	***-***	***15.5***
Segment EBITDA	**82.0**	**41.8**	**123.8**
Segment depreciation	**(16.7)**	**(8.2)**	**(24.9)**
Segment trading profit	**65.3**	**33.6**	**98.9**
Return on sales margin	*10.6%*	*12.2%*	*11.1%*
Amortisation of acquired intangible assets			**(5.0)**
Restructuring charges			**(10.7)**
Operating profit			**83.2**
Net finance costs			**(6.2)**
Share of post-tax profit of joint ventures			**1.6**
Profit before tax			**78.6**
Capital expenditure additions	**17.1**	**6.5**	**23.6**

Notes to the Condensed Group Financial Statements (continued)

2.1 Segmental analysis (continued)

	Unaudited Half year 2018		
	Steel £m	Foundry £m	Continuing operations £m
Segment revenue	610.9	286.1	897.0
- *At a point in time*	*605.8*	*286.1*	*891.9*
- *Over time*	*5.1*	*-*	*5.1*
Segment EBITDA	76.4	43.8	120.2
Segment depreciation	(13.4)	(7.2)	(20.6)
Segment trading profit	63.0	36.6	99.6
Return on sales margin	*10.3%*	*12.8%*	*11.1%*
Amortisation of acquired intangible assets			(9.6)
Operating profit			90.0
Net finance costs			(4.8)
Share of post-tax profit of joint ventures			2.6
Profit before tax			87.8
Capital expenditure additions	10.1	2.6	12.7

	Full year 2018		
	Steel £m	Foundry £m	Continuing operations £m
Segment revenue	1,236.7	561.3	1,798.0
- *At a point in time*	*1,225.7*	*561.3*	*1,787.0*
- *Over time*	*11.0*	*-*	*11.0*
Segment EBITDA	155.3	82.9	238.2
Segment depreciation	(27.0)	(14.0)	(41.0)
Segment trading profit	128.3	68.9	197.2
Return on sales margin	*10.4%*	*12.3%*	*11.0%*
Amortisation of acquired intangible assets			(12.9)
Restructuring charges			(15.3)
GMP equalisation charge			(4.5)
Operating profit			164.5
Net finance costs			(11.1)
Share of post-tax profit of joint ventures			2.8
Profit before tax			156.2
Capital expenditure additions	34.4	14.0	48.4

Notes to the Condensed Group Financial Statements (continued)

3 Restructuring charges

During 2019, restructuring charges reported as separately reported items were £10.7m (2018 full year: £15.3m). These restructuring costs were nil in half year 2018. The charges reflect redundancy costs £6.7m (2018 full year: £8.3m), plant closure costs £3.0m (2018 full year: £4.7m), asset write-offs £1.6m (2018 full year: £1.7m), consultancy and travel fees £0.1m (2018 full year: £0.6m), and a gain on disposal of a property £0.7m (2018 full year: nil).

The net tax credit attributable to these restructuring charges was £1.9m (2018: half year £nil; full year £1.8m).

A cash outflow of £5.8m (2018: half year £10.4m; full year £19.3m) (Note 9) was incurred in H1 2019 in respect of these restructuring programme leaving provisions made, but unspent, of £19.9m (Note 14) as at 30 June 2019 (2018: half year £12.4m; 2018 full year £17.4m), of which £3.8m (2018: half year £2.4m; full year £4.3m) relates to future costs in respect of leases expiring between one and six years.

4 Net finance costs

Total net finance costs for the period of £6.2m (2018: half year £4.8m, full year £11.1m) are analysed in the table below.

	Unaudited Half year 2019 £m	Unaudited Half year 2018 £m	Full year 2018 £m
Interest payable on borrowings			
Loans, overdrafts and factoring arrangements	**8.0**	6.3	14.5
Obligations under leases	**0.6**	0.1	0.2
Amortisation of capitalised borrowing costs	**0.3**	0.1	0.6
Total interest payable on borrowings	**8.9**	6.5	15.3
Interest on net retirement benefits obligations	**0.1**	-	0.1
Adjustments to discounts on provisions and other liabilities	**0.7**	0.5	1.3
Adjustments to discounts on receivables	**(0.4)**	(0.4)	(0.8)
Finance income	**(3.1)**	(1.8)	(4.8)
Total net finance costs	**6.2**	4.8	11.1

5 Income tax

A key measure of tax performance is the effective tax rate, which the Group calculates on the income tax associated with headline performance, divided by the headline profit before tax and before the Group's share of post-tax profit of joint ventures. The Group's effective tax rate was in-line with expectations at 28.0% in H1 2019 (2018: half year 26.0%; full year 26.0%) based on the income tax costs associated with headline performance of £26.0m (2018: half year £24.6m; full year £48.4m).

Following the acquisition of CCPI, a deferred tax liability of £3.4m has been provided for fair value adjustments on the intangible assets acquired. The acquisition is not expected to materially impact the group's effective tax rate on headline profits before tax in future periods.

The Group's total income tax costs include a credit of £3.2m (2018: half year £6.3m credit; full year £36.8m credit) relating to separately reported items comprising: £1.9m credit (2018: half year £nil; full year £1.8m credit) in relation to restructuring charges and a credit of £1.3m (2018: half year £1.9m credit; full year £2.8m credit) relating to the amortisation of intangible assets.

The net income tax credit reflected in the Condensed Group Statement of Comprehensive Income amounted to £1.1m (2018: half year £1.2m charge; full year £6.0m net credit), of which £nil (2018: half year £nil; full year £7.3m credit) was for additional recognition of US pension deferred tax asset and a credit of £1.1m (2018: half year £1.2m charge; full year £1.3m charge) related to tax on net actuarial gains and losses on employee benefits plans.

6 Earnings per share ("EPS")

6.1 Earnings for EPS

Basic and diluted EPS from continuing operations are based upon the profit attributable to owners of the parent, as reported in the Condensed Group Income Statement, of £52.4m (2018: half year £65.4m; full year £137.8m), being the profit for the half year of £55.8m (2018: half year £69.5m; full year £144.6m) less non-controlling interests of £3.4m (2018: half year £4.1m; full year £6.8m); basic and diluted EPS from total operations are based on the profit attributable to owners of the parent of £52.4m (2018: half year £65.9m; full year £138.3m); headline and diluted headline EPS are based upon headline profit from continuing operations attributable to owners of the parent of £63.8m (2018: half year £68.7m; full year £133.7m). The table below reconciles these different profit measures.

	Unaudited Half year 2019 £m	Unaudited Half year 2018 £m	Full year 2018 £m
Profit attributable to owners of the parent	**52.4**	65.9	138.3
Adjustments for separately reported items:			
Amortisation of intangible assets	**5.0**	9.6	12.9
Restructuring charges	**10.7**	-	15.3
Gain on disposal of share in joint venture	**(1.1)**	-	-
GMP equalisation charge	**-**	-	4.5
Income tax charge/(credit)	**(3.2)**	(6.3)	(36.8)
Discontinued operations	**-**	(0.5)	(0.5)
Headline profit attributable to owners of the parent	**63.8**	68.7	133.7

6.2 Weighted average number of shares

	Unaudited Half year 2019 millions	Unaudited Half year 2018 millions	Full year 2018 millions
For calculating basic and headline EPS	**269.1**	270.4	269.8
Adjustment for potentially dilutive ordinary shares	**2.0**	1.4	1.4
For calculating diluted and diluted headline EPS	**271.1**	271.8	271.2

For the purposes of calculating diluted and diluted headline EPS, the weighted average number of ordinary shares is adjusted to include the weighted average number of ordinary shares that would be issued were all outstanding share options to vest in full, relating to the Company's share-based payment plans. Potential ordinary shares are only treated as dilutive when their conversion to ordinary shares would decrease EPS, or increase loss per share.

Notes to the Condensed Group Financial Statements (continued)

6 Earnings per share ("EPS") (continued)

6.3 Per share amounts

		Continuing operations pence	**Discontinued operations pence**	**Unaudited Half year 2019 total pence**	Continuing operations pence	Discontinued operations pence	Unaudited Half year 2018 total pence
Earnings per share	- basic	**19.5**	**-**	**19.5**	24.2	0.2	24.4
	- headline	**23.7**			25.4		
	- diluted	**19.3**	**-**	**19.3**	24.1	0.1	24.2
	- diluted headline	**23.5**			25.3		

		Continuing operations pence	Discontinued operations pence	Full year 2018 total pence
Earnings per share	- basic	51.1	0.2	51.3
	- headline	49.6		
	- diluted	50.8	0.2	51.0
	- diluted headline	49.3		

7 Dividends

	Unaudited Half year 2019 £m	Unaudited Half year 2018 £m	Full year 2018 £m
Amounts recognised as dividends and paid to equity shareholders during the period			
Final dividend for the year-ended 31 December 2017 of 12.50p per ordinary share	**-**	33.8	33.8
Interim dividend for the year-ended 31 December 2018 of 6.00p per ordinary share	**-**	-	16.2
Final dividend for the year-ended 31 December 2018 of 13.80p per ordinary share	**37.2**	-	-
	37.2	33.8	50.0

The Directors have declared an interim dividend of 6.20p per ordinary share in respect of the year-ending 31 December 2019. The dividend will be paid on 20 September 2019 to ordinary shareholders on the register at the close of business on 9 August 2019. Based upon the number of shares in issue at 30 June 2019, the total cost of the dividend would be £16.7m.

8 Reconciliation of movement in net debt

	Balance as at 1 Jan 2019 £m	Transition to IFRS 16 on 1 Jan 2019* £m	Foreign exchange adjustments £m	Non-cash movements £m	Cash flow £m	Balance as at 30 June 2019 £m
Cash and cash equivalents						
Cash at bank and in hand	**236.9**	**-**	**0.7**	**-**	**(7.6)**	**230.0**
Bank overdrafts	**(23.5)**	**-**	**-**	**-**	**12.6**	**(10.9)**
	213.4	**-**	**0.7**	**-**	**5.0**	**219.1**
Borrowings, excluding bank overdrafts						
Current	**(6.5)**	**-**	**(3.0)**	**-**	**(48.0)**	**(57.5)**
Non-current	**(456.7)**	**(29.6)**	**2.5**	**-**	**13.7**	**(470.1)**
	(463.2)	**(29.6)**	**(0.5)**	**-**	**(34.3)**	**(527.6)**
Capitalised borrowing costs	**1.8**	**-**	**-**	**(0.3)**	**-**	**1.5**
Net debt	**(248.0)**	**(29.6)**	**0.2**	**(0.3)**	**(29.3)**	**(307.0)**

* The Group has adopted IFRS 16 leases from 1 January 2019 and, in accordance with the simplified approach, has not restated comparatives on transition. The reclassifications and adjustments arising from the new lease accounting rules are therefore recognised in the opening balance sheet on 1 January 2019 (please refer to note 1.6).

Notes to the Condensed Group Financial Statements (continued)

9 Cash generated from operations

	Continuing operations £m	**Discontinued operations £m**	**Unaudited Half year 2019 £m**	Continuing Operations £m	Discontinued Operations £m	Unaudited Half year 2018 £m
Operating profit	**83.2**	**-**	**83.2**	90.0	0.5	90.5
Adjustments for:						
Amortisation of intangible assets	**5.0**	**-**	**5.0**	9.6	-	9.6
Restructuring charges	**10.7**	**-**	**10.7**	-	-	-
Depreciation	**24.9**	**-**	**24.9**	20.6	-	20.6
EBITDA (Note 16.12)	**123.8**	**-**	**123.8**	120.2	0.5	120.7
Net increase in inventories	**(4.0)**	**-**	**(4.0)**	(35.2)	-	(35.2)
Net increase in trade receivables	**(6.0)**	**-**	**(6.0)**	(27.7)	-	(27.7)
Net (decrease)/increase in trade payables	**(0.3)**	**-**	**(0.3)**	13.3	-	13.3
Net decrease/(increase) in other working capital	**(6.3)**	**-**	**(6.3)**	16.7	(0.6)	16.1
Outflow related to restructuring charges	**(5.8)**	**-**	**(5.8)**	(10.4)	-	(10.4)
Inflow relating to assets and liabilities classified as held for sale	**1.7**	**-**	**1.7**	-	-	-
Net retirement benefit obligations	**(1.4)**	**-**	**(1.4)**	0.1	-	0.1
Cash generated from operations	**101.7**	**-**	**101.7**	77.0	(0.1)	76.9

	Continuing operations £m	Discontinued operations £m	Full year 2018 total £m
Operating profit	164.5	0.5	165.0
Adjustments for:			
Amortisation of intangible assets	12.9	-	12.9
Restructuring charges	15.3	-	15.3
GMP equalisation charge	4.5	-	4.5
Depreciation	41.0	-	41.0
EBITDA (Note 16.12)	238.2	0.5	238.7
Net increase in inventories	(20.7)	-	(20.7)
Net increase in trade receivables	(4.9)	-	(4.9)
Net increase in trade payables	3.6	-	3.6
Net decrease/(increase) in other working capital	1.8	(0.6)	1.2
Outflow related to restructuring charges	(19.3)	-	(19.3)
Net retirement benefit obligations	(3.4)	-	(3.4)
Cash generated from operations	195.3	(0.1)	195.2

Notes to the Condensed Group Financial Statements (continued)

10 Employee benefits

The net employee benefits liability balance as at 30 June 2019 of £14.8m (2018: half year £8.3m; full year £15.3m) in respect of the Group's defined benefit retirement plans and other post-retirement benefits plans, results from an actuarial valuation of the Group's defined benefit pension and other post-retirement obligations as at that date. As analysed in the following table, the net balance comprised net surpluses (assets) of £101.5m (2018: half year £98.2m; full year £90.8m), relating largely to the Group's main defined benefit pension plan in the UK, together with net liabilities (deficits) of £116.3m (2018: half year £106.5m; full year £106.1m).

	Unaudited Half year 2019 £m	Unaudited Half year 2018 £m	Full year 2018 £m
Employee benefits — net surpluses			
UK defined benefit pension plans	**100.5**	97.2	89.7
ROW defined benefit pension plans	**1.0**	1.0	1.1
Net surpluses	**101.5**	98.2	90.8
Employee benefits — net liabilities			
UK defined benefit pension plans	**(1.7)**	(1.8)	(1.8)
US defined benefit pension plans	**(32.0)**	(30.0)	(32.5)
Germany defined benefit pension plans	**(55.2)**	(48.7)	(47.8)
ROW defined benefit pension plans	**(20.0)**	(19.3)	(16.7)
Other post-retirement benefit plans	**(7.4)**	(6.7)	(7.3)
Net liabilities	**(116.3)**	(106.5)	(106.1)
Total liabilities	**(14.8)**	(8.3)	(15.3)

The total net charge of £3.1m (2018: half year £3.6m; full year £9.8m) recognised in the Condensed Group Income Statement in respect of the Group's defined benefit pension plans and other post-retirement benefits plans is recognised in the following lines.

		Unaudited Half year 2019 £m	Unaudited Half year 2018 £m	Full year 2018 £m
In arriving at trading profit (as defined in Note 16)	— within manufacturing costs	**0.9**	1.4	1.5
	— within administration, selling and distribution costs	**2.1**	2.2	3.7
In arriving at profit before tax	— Guaranteed minimum pension equalisation charge	**-**	-	4.5
	— within net finance costs	**0.1**	-	0.1
Total net charge		**3.1**	3.6	9.8

Notes to the Condensed Group Financial Statements (continued)

11 Contingent liabilities

Guarantees given by the Group under property leases of disposed operations amounted to £0.5m (2018: half year £1.1m; full year £0.8m).

Vesuvius has extensive international operations and is subject to various legal and regulatory regimes, including those covering taxation and environmental matters. Several of Vesuvius' subsidiaries are parties to legal proceedings, certain of which are insured claims arising in the ordinary course of the operations of the company involved, and the Directors are aware of a number of issues which are, or may be, the subject of dispute with tax authorities. Provisions are made for the expected amounts payable in respect of known or probable costs resulting both from legal or other regulatory requirements, or from third-party claims.

Certain of Vesuvius' subsidiaries are subject to lawsuits, predominantly in the US, relating to a small number of products containing asbestos manufactured prior to the acquisition of those subsidiaries by Vesuvius. These suits usually also name many other product manufacturers. To date, Vesuvius is not aware of there being any liability verdicts against any of these subsidiaries. A number of lawsuits have been withdrawn, dismissed or settled and the amount paid, including costs, in relation to this litigation has not had a material adverse effect on Vesuvius' financial position or results of operations.

As the settlement of many of the obligations for which reserve is made is subject to legal or other regulatory process, the timing and amount of the associated outflows is subject to some uncertainty.

12 Related parties

The nature of related party transactions in H1 2019 are in line with those transactions disclosed in Note 35 of the 2018 Group Financial Statements. All transactions with related parties are conducted on an arm's length basis and in accordance with normal business terms. Transactions with joint ventures and associates are consistent with those disclosed in Note 34 of the 2018 Group Financial Statements. Transactions between related parties that are Group subsidiaries are eliminated on consolidation.

In June 2019 Vesuvius completed the sale of 50% interest in Angang Vesuvius Refractory Company Ltd.

13 Acquisitions and divestments

On 1 March 2019, Vesuvius plc acquired 100% of the share capital of CCPI Inc ("CCPI"), a specialty refractory producer focused on tundish (steel continuous casting) applications (65% of sales) and aluminium (35% of sales). CCPI is based in Ohio, USA, and has become part of the Group's Advanced Refractories business unit. The transaction valued CCPI at US$43.4 million (£33.3 million) on a cash and debt free basis and was funded from Vesuvius' internal resources. The acquisition increased Vesuvius' share of the tundish market and gives the Group an entry to the aluminium market.

Final valuations have not all been completed but the provisional fair values of the assets and liabilities recognised as a result of the acquisition are as follows:

	£m
Cash and cash equivalents	0.9
Property, plant and equipment	5.2
Intangible asset (customer relationships)	13.8
Inventories	4.5
Receivables	5.2
Payables	(3.1)
Finance lease obligations	(1.5)
Deferred tax	(2.9)
Net identifiable assets acquired	22.1
Goodwill	11.2
Consideration	**33.3**

Notes to the Condensed Group Financial Statements (continued)

13 Acquisitions and divestments (continued)

The goodwill is attributable to CCPI's reputation in the marketplace and the synergies that Vesuvius expects to gain from integrating its tundish business into the Advanced Refractories business unit and is expected to be tax deductible.

The decision to acquire CCPI was driven by its long-standing customer relationships and these are the identifiable intangible assets acquired. The fair value of these intangibles is provisional pending final valuations. A deferred tax liability of £3.4m has been provided in relation to these fair value adjustments.

In the period since acquisition, CCPI has contributed £9.7m to revenue and £0.8m to operating profit. If the acquisition had occurred on the first day of the financial year, it is estimated that the revenue and operating profit from the acquisition would have been £14.7m and £1.4m respectively.

The net cash outflow on acquisition was £32.4m, being cash consideration of £33.3m less cash and cash equivalents acquired of £0.9m.

Acquisition-related costs of £0.7m are included in administrative expenses in the income statement.

In June 2019 Vesuvius completed the sale of its 50% interest in Angang Vesuvius Refractory Company, Ltd. The value of the investment was £6.9m. The consideration received (in early July 2019) was cash of £6.9m resulting in a profit after foreign currency adjustments of £1.1m.

14 Provisions

	Disposal, legacy and closure costs £m	Restructuring charges £m	Other £m	Total £m
As at 1 January 2019	**39.8**	**17.4**	**4.7**	**61.9**
Exchange adjustments	-	-	-	**-**
Charge to Condensed Group Income Statement	-	10.7	4.7	**15.4**
Unused amounts released to Condensed Group Income Statement	(5.0)[1]	-	-	**(5.0)**
Adjustment to discount	0.5	-	-	**0.5**
Cash spend	(3.6)	(5.8)	(3.7)	**(13.1)**
Transferred from other balance sheet accounts	-	(2.4)	-	**(2.4)**
As at 30 June 2019	**31.7**	**19.9**	**5.7**	**57.3**

In assessing the probable costs and realisation certainty of provisions, or related assets, reasonable assumptions are made. Changes to the assumptions used could significantly alter the Directors' assessment of the value, timing or certainty of the costs or related amounts.

[1] Insurance cover exists for some known or probable costs and a related asset is recognised in the Group Balance Sheet. An equivalent reduction in the value of the insurance asset was recorded in the period to 30 June 2019.

15 Financial instruments

The Company's financial assets are measured at amortised cost with the exception of certain investments in debt and equity, which are measured at fair value through other comprehensive income. Financial liabilities are measured at amortised cost with the exception of certain derivative instruments, which are measured at fair value through profit and loss.

IFRS 13 Fair Value Measurement requires classification of financial instruments within a hierarchy that prioritises the inputs to fair value measurement. The three levels of the fair value hierarchy are:

Level 1 – Unadjusted quoted prices in active markets for identical assets or liabilities;
Level 2 – Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly;
Level 3 – Inputs that are not based on observable market data.

The following table summarises Vesuvius' financial instruments measured at fair value, and shows the level within the fair value hierarchy in which the financial instruments have been classified:

	Unaudited Half year 2019		Unaudited Half year 2018		Full year 2018	
	Assets	**Liabilities**	Assets	Liabilities	Assets	Liabilities
	£m	**£m**	£m	£m	£m	£m
Investments (Level 2)	**1.3**	**-**	1.4	-	1.0	-
Derivatives not designated for hedge accounting purposes (Level 2)	**-**	**(0.1)**	0.4	(0.1)	0.8	(0.6)

All of the derivative financial instruments reported in the table above will mature within a year of the balance sheet date. There were no transfers between fair value hierarchies during the period. The method for determining the hierarchy and for valuing the financial instruments is consistent with that used at year-end, as disclosed in Note 26 of the 2018 Annual Report and Financial Statements. Fair value disclosures have not been made in respect of other financial assets and liabilities on the basis that the carrying amount is deemed to be a reasonable approximation of fair value.

The Group's Treasury department, acting in accordance with policies approved by the Board, is principally responsible for managing the financial risks faced by the Group. The Group's activities expose it to a variety of financial risks, the most significant of which are market risk and liquidity risk. The condensed interim financial statements do not include all financial risk management information and disclosures required in the annual financial statements; they should be read in conjunction with the Group's 2018 Annual Report and Financial Statements, in which further details of these financial risks were disclosed in Note 26. There have been no changes in the risk management policies since year end.

Notes to the Condensed Group Financial Statements (continued)

15 Financial instruments (continued)

The currency and interest rate profile of the Group's borrowings is detailed in the tables below.

	Financial liabilities (gross borrowings)		
	Fixed rate	Floating rate	Total
	£m	£m	£m
Sterling	**-**	**106.3**	**106.3**
United States dollar	**157.6**	**5.4**	**163.0**
Euro	**116.4**	**125.2**	**241.6**
Other	**-**	**27.6**	**27.6**
Capitalised costs	**(1.5)**	**-**	**(1.5)**
As at 30 June 2019	**272.5**	**264.5**	**537.0**
Sterling	-	73.0	73.0
United States dollar	156.8	10.4	167.2
Euro	116.9	121.2	238.1
Other	-	8.4	8.4
Capitalised costs	(1.8)	-	(1.8)
As at 31 December 2018	271.9	213.0	484.9

The maturity analysis of the Group's non-derivative financial liabilities is shown in the tables below.

As at 30 June 2019	**Within one year**	**Between 1-2 years**	**Between 2-5 years**	**Over 5 years**	**Total contractual cash flows**	**Carrying amount**
	£m	**£m**	**£m**	**£m**	**£m**	**£m**
Trade payables	**196.9**	**-**	**-**	**-**	**196.9**	**196.9**
Loans & overdrafts	**63.3**	**110.3**	**204.9**	**126.6**	**505.1**	**505.1**
Finance lease liabilities	**5.1**	**10.4**	**13.4**	**7.0**	**35.9**	**33.4**
Capitalised arrangement fees	**-**	**-**	**-**	**-**	**-**	**(1.5)**
Total interest-bearing borrowings	**68.4**	**120.7**	**218.3**	**133.6**	**541.0**	**537.0**
Total non-derivative financial liabilities	**265.3**	**120.7**	**218.3**	**133.6**	**737.9**	**733.9**

As at 31 December 2018	Within one year	Between 1-2 years	Between 2-5 years	Over 5 years	Total contractual cash flows	Carrying amount
	£m	£m	£m	£m	£m	£m
Trade payables	197.3	-	-	-	197.3	197.3
Loans & overdrafts	28.2	109.7	217.9	127.0	482.8	482.8
Finance leases	1.7	1.2	1.0	-	3.9	3.9
Capitalised arrangement fees	-	-	-	-	-	(1.8)
Total interest-bearing borrowings	29.9	110.9	218.9	127.0	486.7	484.9
Total non-derivative financial liabilities	227.2	110.9	218.9	127.0	684.0	682.2

Notes to the Condensed Group Financial Statements (continued)

16 Alternative performance measures

The Company uses a number of Alternative Performance Measures (APMs) in addition to those reported in accordance with IFRS. The Directors believe that these APMs, listed below, are important when assessing the underlying financial and operating performance of the Group and its Divisions, providing management with key insights and metrics in support of the ongoing management of the Group's performance and cash flow. A number of these align with KPI's and other key metrics used in the business and therefore are considered useful to also disclose to the users of the financial statements. The following APMs do not have standardised meaning prescribed by IFRS and therefore may not be directly comparable to similar measures presented by other companies.

16.1 Headline

Headline performance, reported separately on the face of the Condensed Group Income Statement, is from continuing operations and before items reported separately on the face of the Condensed Group Income Statement.

16.2 Underlying revenue, underlying trading profit and underlying return on sales

Underlying revenue, underlying trading profit and underlying return on sales are the headline equivalents of these measures after adjustments to exclude the effects of changes in exchange rates, business acquisitions and disposals. Reconciliations of underlying revenue and underlying trading profit can be found in the Financial Summary. Underlying revenue growth is one of the Group's key performance indicators and provides an important measure of organic growth of Group businesses between reporting periods, by eliminating the impact of exchange rates, acquisitions, disposals and significant business closures.

16.3 Return on Sales ('ROS')

ROS is calculated as trading profit divided by revenue. It is one of the Group's key performance indicators and is used to assess the trading performance of Group businesses. A reconciliation of ROS is included in Note 2.

16.4 Trading profit

Trading profit is defined as operating profit before separately reported items. It is one of the Group's key performance indicators and is used to assess the trading performance of Group businesses. It is also used as one of the targets against which the annual bonuses of certain employees are measured.

16.5 Headline profit before tax

Headline profit before tax is calculated as the net total of trading profit, plus the Group's share of post-tax profit of joint ventures and total net finance costs associated with headline performance. It is one of the Group's key performance indicators and is used to assess the financial performance of the Group as a whole.

16.6 Effective tax rate ('ETR')

The Group's ETR is calculated on the income tax costs associated with headline performance, divided by headline profit before tax and before the Group's share of post-tax profit of joint ventures.

16.7 Headline earnings per share

Headline earnings per share is calculated by dividing headline profit before tax less associated income tax costs, attributable to owners of the parent by the weighted average number of ordinary shares in issue during the year. It is one of the Group's key performance indicators and is used to assess the underlying earnings performance of the Group as a whole. It is also used as one of the targets against which the annual bonuses of certain employees are measured. Headline earnings per share is disclosed in Note 6 of the Condensed Group Financial Statements.

16.8 Operating cash flow

Operating cash flow is cash generated from continuing operations before restructuring and additional pension funding contributions but after deducting capital expenditure net of asset disposals. It is used in calculating the Group's cash conversion. A reconciliation of cash generated from operations to operating cash flow can be found in the Financial Review.

16.9 Cash conversion

Cash conversion is calculated as operating cash flow divided by trading profit. It is useful for measuring the rate at which cash is generated from trading profit. It is also used as one of the targets against which the annual bonuses of certain employees are measured. The calculation of cash conversion is detailed in the Financial Review.

16.10 Free cash flow

Free cash flow is defined as net cash flow from operating activities after net outlays for the purchase and sale of property, plant and equipment, dividends from joint ventures and dividends paid to non-controlling shareholders, but before additional funding contributions to Group pension plans. It is one of the Group's key performance indicators and is used to assess the underlying cash generation of the Group and is one of the measures used in monitoring the Group's capital. A reconciliation of free cash flow is included underneath the Condensed Group Statement of Cash Flows.

16.11 Average trade working capital to sales ratio

The average trade working capital to sales ratio is calculated as the percentage of average trade working capital balances to the total revenue for the year, at constant currency. Average trade working capital (comprising inventories, trade receivables and trade payables) is calculated as the average of the 12 previous month-end balances. It is one of the Group's key performance indicators and is useful for measuring the level of working capital used in the business and is one of the measures used in monitoring the Group's capital.

16.12 Earnings before interest, tax, depreciation and amortisation ('EBITDA')

EBITDA is calculated as the total of trading profit before depreciation and amortisation of non-acquired intangibles. It is used in the calculation of the Group's interest cover and net debt to EBITDA ratios. A reconciliation of EBITDA is included in Note 9.

16.13 Net interest

Net interest is calculated as interest payable on borrowings less interest receivable, excluding any item separately reported. It is used in the calculation of the Group's interest cover ratio.

16.14 Interest cover

Interest cover is the ratio of EBITDA to net interest. It is one of the Group's key performance indicators and is used to assess the financial position of the Group and its ability to fund future growth. This measure is also a component of the Group's covenant calculations.

16.15 Net debt

Net debt comprises the net total of current and non-current interest-bearing borrowings and cash and short-term deposits. Net debt is a measure of the Group's net indebtedness to banks and other external financial institutions. A reconciliation of the movement in net debt is included in Note 8.

Notes to the Condensed Group Financial Statements (continued)

16.16 Net debt to EBITDA

Net debt to EBITDA is the ratio of net debt at the period-end to EBITDA for the last 12 months. It is one of the Group's key performance indicators and is used to assess the financial position of the Group and its ability to fund future growth and is one of the measures used in monitoring the Group's capital.

16.17 Return on net assets ('RONA')

RONA is calculated as trading profit plus share of post-tax profit of joint ventures, divided by average net operating assets, at constant currency (being the average over the previous 12 months of property, plant and equipment, trade working capital and other operating receivables and payables). It is one of the Group's key performance indicators and is used to assess the financial performance and asset management of the Group and is one of the measures used in monitoring the Group's capital.

16.18 Constant currency

Figures presented at constant currency represent 2018 amounts retranslated at average 2019 exchange rates.

17 Exchange rates

The Group reports its results in pounds sterling. A substantial portion of the Group's revenue and profits are denominated in currencies other than pounds sterling. It is the Group's policy to translate the income statements and cash flow statements of its overseas operations into pounds sterling using average exchange rates for the year reported (except when the use of average rates does not approximate the exchange rate at the date of the transaction, in which case the transaction rate is used) and to translate balance sheets using period end rates. The principal exchange rates used were as follows:

	Income and expense Average rates				
	Half year 2019	**Half year 2018**	**Full year 2018**	**Half year to Half year change**	**Full year to Half year change**
US Dollar	**1.29**	1.38	1.34	(6.0%)	(3.1%)
Euro	**1.15**	1.14	1.13	0.8%	1.3%
Chinese Renminbi	**8.78**	8.76	8.82	0.2%	(0.5%)
Japanese Yen	**142.41**	149.67	147.36	(4.9%)	(3.4%)
Brazilian Real	**4.97**	4.70	4.87	5.8%	2.2%
Indian Rupee	**90.55**	90.32	91.18	0.3%	(0.7%)
South African Rand	**18.36**	16.87	17.63	8.8%	4.1%

	Assets and liabilities Period end rates				
	Half year 2019	**Half year 2018**	**Full year 2018**	**Half year to Half year change**	**Full year to Half year change**
US Dollar	**1.27**	1.32	1.28	(3.9%)	(0.5%)
Euro	**1.12**	1.13	1.11	(1.2%)	0.4%
Chinese Renminbi	**8.71**	8.74	8.77	(0.3%)	(0.7%)
Japanese Yen	**136.93**	146.15	139.77	(6.3%)	(2.0%)
Brazilian Real	**4.89**	5.12	4.95	(4.5%)	(1.2%)
Indian Rupee	**87.51**	90.4	88.74	(3.2%)	(1.4%)
South African Rand	**17.86**	18.12	18.30	(1.4%)	(2.4%)

Alternative performance measures – Supplementary information

5-year history at constant currency

	2015 H1	2016 H1	2017 H1	2018 H1	2019 H1
Revenue (£m)	**785.0**	**731.0**	**803.3**	**900.2**	**889.4**
Steel	529.8	484.3	543.4	614.1	614.9
Foundry	255.2	246.7	259.9	286.1	274.5
Trading Profit (£m)	**77.4**	**65.2**	**82.7**	**98.8**	**98.9**
Steel	48.1	37.7	49.8	63.8	65.3
Foundry	29.3	27.5	32.9	35.0	33.6
Return on Sales	**9.9%**	**8.9%**	**10.3%**	**11.0%**	**11.1%**
Steel	9.1%	7.8%	9.2%	10.4%	10.6%
Foundry	11.5%	11.1%	12.6%	12.2%	12.2%