

United Kingdom | Consumer | Consumer Staples | ART LN | Market Cap £66.2m | 24 May 2023^

## The Artisanal Spirits Company\* Strong Q2 provides confidence for FY23 expectations



**Wayne Brown**  
+44 (0) 20 3100 2082  
wayne.brown@liberum.com

**Anubhav Malhotra**  
+44 (0) 20 3100 2197  
anubhav.malhotra@liberum.com

**Adam Tomlinson**  
+44 (0) 20 3100 2174  
adam.tomlinson@liberum.com

Membership growth of +10% for the first four months of the year is in-line and underpins confidence and forecasts. However, revenue growth has accelerated in Q2, following a broadly flat start to the year, with the trajectory expected to continue for the remainder of the half. With Europe and China showing strong signs of recovery, and with pricing coming through suggests revenues should yet again outstrip membership growth by at least 5-7 ppts this year. Don't forget comparatives are tough in H1 where revenues grew +25% LY but these soften in H2 to +15%. The multiple margin drivers are identifiable and with the final stage of Masterton Bond now complete so the delivery of c.4% EBITDA margins (2022: 1.7%) this year is in-hand. We see near double-digit EBITDA margins and positive PBT next year. With a strong net asset underpin the shares look very cheap for a premium, luxury whisky business that is truly unique.

### A clear and concise investment thesis

The Artisanal Spirits investment case is about considerable market share opportunity in the premium segment of the scotch whisky market. With 0.3% share of a c.\$6bn TAM, and all the markets in which it operates exhibiting long-term structural tailwinds, offers decades of future growth opportunity. This together with favourable customer demographics underpins the consistency that Artisanal Spirits has been able to grow its member base by double digits. The case is not just for double-digit revenue CAGR, but avoiding the low margin and high capex activity of resellers and producers means these revenues drop through at high margins. And there are several catalysts that should see these margins rise much further.

- The quality and value of its inventory - Not only is the inventory an appreciating asset (which is very rare to see) but provides an inflation hedge and relative gross margin protection.
- Artisanal Spirits avoids the low margin, high capex characteristics seen in resellers/ distillers. Instead, it benefits from all the value enhancing

**BUY**

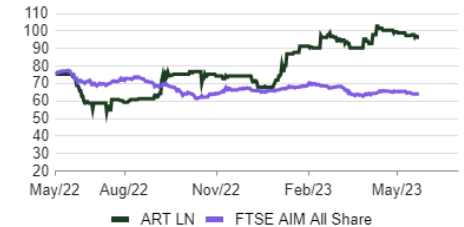
**Target Price 130.0p**  
Publication price 96.0p

\*Corporate Broking Client of Liberum

### Next events

1H23 Trading Update	July 2023
1H23 results	September 2023

### Stock performance



### Summary financials & valuation (£m)

#### Calendar year

EV (CY)	22A	23E	24E	25E
Market Cap	66.2	66.2	66.2	66.2
Net Debt/(Cash)	18.3	21.8	23.2	22.0
EV	84.6	88.0	89.5	88.2

#### Valuation (CY)

	22A	23E	24E	25E
P/E (x)	(34.0)	(28.7)	(70.9)	112.0
Div Yield (%)	0.0	0.0	0.0	0.0
EV/Sales (x)	3.9	3.5	3.0	2.5
EV/EBITDA (x)	225.5	84.7	33.6	19.9
EV/EBIT (x)	(95.7)	(194.6)	84.2	31.0
FCFe Yield (%)	(19.1)	(5.2)	(2.5)	1.7
Price / book (x)	3.1	3.5	3.7	3.5

#### Financial year (December year end)

Financials (FY)	22A	23E	24E	25E
Sales	21.8	25.5	30.2	35.1
EBITDA	0.4	1.0	2.7	4.4
EBIT	(0.9)	(0.5)	1.1	2.8
EBIT Margin (%)	(4.1)	(1.8)	3.5	8.1
Net Interest	(0.6)	(1.0)	(1.0)	(1.0)
PBT	(1.5)	(1.5)	0.1	1.9
FD EPS (p)	(2.8)	(3.3)	(1.4)	0.9
DPS (p)	0.0	0.0	0.0	0.0
Net Debt/(Cash)*	18.3	21.8	23.2	22.0
Net Debt*/EBITDA (x)	48.9	21.0	8.7	5.0
Net Debt*/MktCap (x)	0.3	0.3	0.4	0.3

Source: Liberum, Bloomberg

All numbers are on a post IFRS 16 basis unless stated. \* Including leases. \*\* Excluding leases

This document is a marketing communication and has been prepared and distributed by Liberum Capital Limited. This communication has not been prepared in accordance with legal requirements under COBS 12 of the FCA Handbook designed to promote the independence of investment research and is not subject to a prohibition on dealing ahead of the dissemination of investment research. However, Liberum is required by the FCA to have policies in place to identify and manage the conflicts of interest which may arise in its production, which include preventing dealing ahead. Information regarding our policies is available, [www.liberum.com](http://www.liberum.com). In addition, a list of items which could create a conflict of interest and other material interests in relation to research material is set out on LCL's website. For detailed disclosures, please refer to [www.liberum.com/legal](http://www.liberum.com/legal) For Reg-AC certification, see the end of the text. If this communication is distributed by another firm, it is considered independent third-party research and additional information regarding such firm is provided at the end of this communication. Liberum does and seeks to do business with companies covered in this communication. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this communication. Investors should consider this communication as only a single factor in making their investment decision. ^Completed when first distributed.

---

upstream work through maturation and by primarily selling through a D2C model, this ensures very strong GM%

- In five years', Artisanal Spirits should be a double-digit revenue and 20% EBITDA model business. We assess DCF, implied future value creation model, and conduct a detailed peer comparison highlighting the quality of the Artisanal model which provides our 130p TP.

---

## **Q2 has started strongly, and growth trajectory is positive.**

The group has started Q2 well with a positive start to the year. Global membership is now running at over 38,000 having been c.37,000 at the end of March.

**Revenues accelerating during the period** - Revenue performance has returned to growth in Q2, following a broadly flat start for the first two months of the year. The group is confident that progress seen in the three months, hence, should continue for the remainder of the half. Membership has increased +10% YoY as at the end of April 2023, benefitting from a notably strong performance in Europe.

**Supply chain investment on-track** - The group continues to benefit from the first-year operation from the Masterton Bond facility, a key margin driver for our forecasts and support for international growth. Online fulfilment has very recently been introduced into the facility meaning all three elements of cask warehousing, bottling and e-commerce fulfilment is now up and running in the facility suggesting the group is on-track to deliver on its strategic promises in time and in budget.

Other key strategic milestones are:

- Continued signs of recovery in China, following the Covid impacted slow start to the year. China saw a slow Jan and Feb, but trading started to recover in March and April bouncing back strongly so far in May. This provides confidence that the COVID headwinds have abated, and this geography has returned to pre-COVID growth dynamics.
- Successful launch of the new Franchise in South Korea, achieving 300 new members on initial launch in April 2023.
- Established a new Taiwan subsidiary which is due to launch as planned in Q3 of this year, replacing the existing franchise arrangement. Taiwan is the third largest premium whisky market in the world (2021 TAM of \$498m) and having direct control over the territory through a JV structure provides the right impetus to drive growth. A dedicated country manager has been hired.
- New franchise agreement in Malaysia, as previously reported, and a further new franchise agreement with La Maison du Whisky in Singapore. This brings the group's number of capital light franchise arrangements to 13.
- We also understand the USA is trading in-line with expectations.

**Guidance remains unchanged** - With a strong start to Q2, the group has confirmed guidance remains unchanged. Consensus market expectations for the year ending 31 December 2023 are revenue of £25.2m (2022: £21.8m) vs. Liberum at £25.5m and EBITDA of £1.1m (2022: Adjusted EBITDA £0.4m) vs. Liberum at £1.0m

## Multiple inflection points ahoy

Artisanal Spirits has invested heavily since 2015 to build out its inventory base. It now has enough whisky stock to satisfy demand into the next decade, hedging inflationary costs and providing security for gross margins. The intensive investment phase has now peaked and as the group moves towards a stock replacement cycle, should allow for rapid EBITDA growth from hereon and positive PBT in 2024.

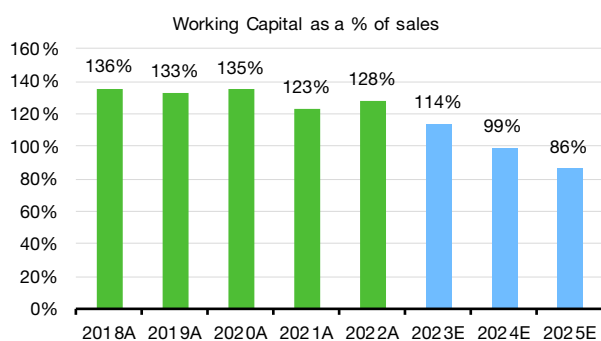
Of the spirit purchases being made from now on, the age profile is getting younger. This brings two key benefits: (1) the group will get more bang for its buck, in terms of volume acquired, which will over time see the cost of spirit per bottle fall by c.60%; and (2) the maturation of the spirit in ex-sherry casks allows for at least £10/bottle of higher pricing. These two catalysts alongside organic growth and benefits from the supply chain investment, allow for EBITDA to expand and FCF to build.

**Multiple inflection points in sight** – Having accelerated its whisky investment since 2015, the group now moves into replacement cycle thereby requiring less working capital:

- **FY23** – Gross margins rise 140bps to 65%, **expansion of EBITDA margins to 4.1% from 1.7% in FY22.**
- **FY24** – Gross margins rise a further 100bps, EBITDA margins more than double to 8.8%, **and the group becomes PBT positive and funds all its working capital, and tax from internally generated cash.**
- **FY25** - **The group becomes fully self-funding being FCF positive.**

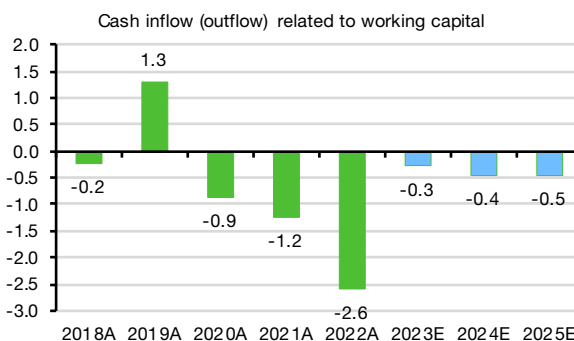
We see this being driven firstly by lower working capital demands in the near term as shown by the two charts below.

**Figure 1: Working capital as a % of sales**



Source: Liberum

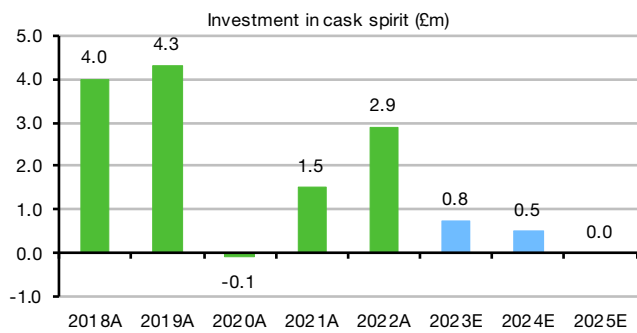
**Figure 2: Cash generation dynamics**



Source: Liberum

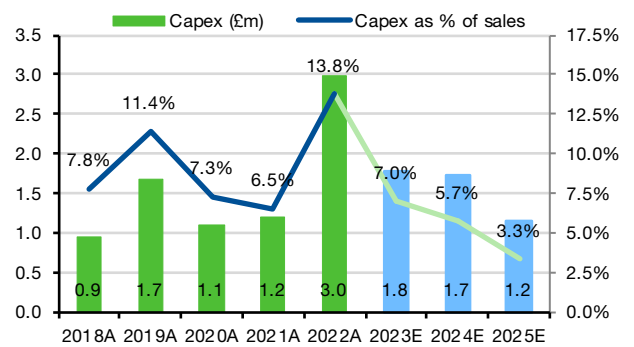
- Then there is a limited further investment in spirit inventory over the forecast period (Fig 3).
- The group has also passed peak capex having spent a significant amount on the in-house supply chain facility and IT spend last year (Fig 4).
- The greatest portion of capex spend will now be on cask wood for the next few years.

**Figure 3: Spend on casks has past its peak**



Source: Liberum

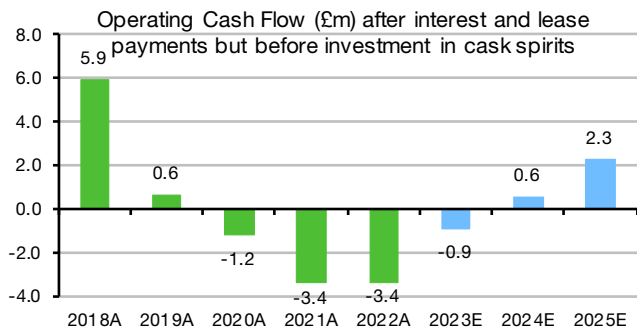
**Figure 4: Capex is lower**



Source: Liberum estimates

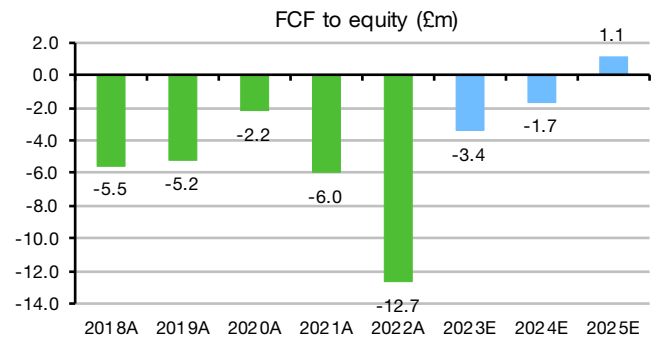
And all this means, working capital becomes self-funded from internally generated cash in FY24, and the group becomes fully self-funding in FY25.

**Figure 5: On the path to being self-funding**



Source: Liberum

**Figure 6: FCF positive in 2 years**



Source: Liberum

## Financial model

Figure 7: Income statement (£m)

December year-end	2022A	2023E	2024E	2025E
Total sales	21.8	25.5	30.2	35.1
Sales growth (%)	n.a.	17.0	18.5	16.2
Gross margin (%)	63.6	65.0	66.0	66.5
Cost of sales	(7.9)	(8.9)	(10.3)	(11.8)
Gross profit	13.8	16.6	19.9	23.3
Operating expenses	(4.1)	(5.2)	(6.4)	(7.2)
Administrative expenses	(9.2)	(10.2)	(10.7)	(11.5)
Share based payments	(0.2)	(0.2)	(0.2)	(0.2)
<b>Underlying EBITDA</b>	<b>0.4</b>	<b>1.0</b>	<b>2.7</b>	<b>4.4</b>
Depreciation	(1.0)	(1.2)	(1.3)	(1.3)
Amortisation (not acquired)	(0.3)	(0.3)	(0.3)	(0.3)
Underlying EBIT (pre JVs)	(0.9)	(0.5)	1.1	2.8
EBIT (pre JVs) margin (%)	(4.1)	(1.8)	3.5	8.1
Revenue	0.0	0.0	0.0	0.0
PBT	0.0	0.0	0.0	0.0
Tax	0.0	0.0	0.0	0.0
JV post tax profit	0.0	0.0	0.0	0.0
JV contribution	0.0	0.0	0.0	0.0
Profit on disposal	0.0	0.0	0.0	0.0
<b>Underlying EBIT</b>	<b>(0.9)</b>	<b>(0.5)</b>	<b>1.1</b>	<b>2.8</b>
<b>EBIT Margin (%)</b>	<b>(4.1)</b>	<b>(1.8)</b>	<b>3.5</b>	<b>8.1</b>
Amortisation of acquired intangibles	0.0	0.0	0.0	0.0
Exceptional / extraordinary costs	(0.6)	0.0	0.0	0.0
Reported EBIT	(1.5)	(0.5)	1.1	2.8
Non-operating exceptional costs	0.0	0.0	0.0	0.0
Interest income	0.0	0.0	0.0	0.0
Interest costs	(0.6)	(1.0)	(1.0)	(1.0)
Pension credit / (cost)	0.0	0.0	0.0	0.0
Net Interest	(0.6)	(1.0)	(1.0)	(1.0)
<b>Underlying PBT</b>	<b>(1.5)</b>	<b>(1.5)</b>	<b>0.1</b>	<b>1.9</b>
Reported PBT	(2.1)	(1.5)	0.1	1.9
Underlying tax rate (%)	(10.3)	(38.0)	688.7	44.5
Exceptional tax rate (%)	(10.3)	(38.0)	688.7	44.5
Reported tax rate (%)	(10.3)	(38.0)	688.7	44.5
Underlying tax	(0.2)	(0.6)	(0.7)	(0.8)
Exceptional tax	0.0	0.0	0.0	0.0
Reported tax	(0.2)	(0.6)	(0.7)	(0.8)
<b>Underlying PAT</b>	<b>(1.7)</b>	<b>(2.0)</b>	<b>(0.6)</b>	<b>1.0</b>
Discontinued operations (net)	0.0	0.0	0.0	0.0
Profit on disposal	0.0	0.0	0.0	0.0
<b>Reported PAT</b>	<b>(2.3)</b>	<b>(2.0)</b>	<b>(0.6)</b>	<b>1.0</b>
Preference dividends	0.0	0.0	0.0	0.0
<b>Underlying net income</b>	<b>(1.7)</b>	<b>(2.0)</b>	<b>(0.6)</b>	<b>1.0</b>
Reported net income	(2.3)	(2.0)	(0.6)	1.0
Weighted average number of shares (basic) (m)	69.7	69.7	69.7	69.7
Weighted average number of shares (diluted) (m)	74.7	74.7	74.7	74.7
Number of shares at period end (basic) (m)	0.0	0.0	0.0	0.0
Reported EPS (basic) (p)	(3.7)	(2.9)	(0.8)	0.9
Reported EPS (diluted) (p)	(3.7)	(3.3)	(1.4)	0.9
Underlying EPS (basic) (p)	(2.8)	(3.3)	(1.4)	0.9
Underlying EPS (basic) growth (%)	n.a.	18.3	(59.5)	(167.9)
<b>Underlying EPS (diluted) (p)</b>	<b>(2.8)</b>	<b>(3.3)</b>	<b>(1.4)</b>	<b>0.9</b>
<b>Underlying EPS (diluted) growth (%)</b>	<b>n.a.</b>	<b>18.3</b>	<b>(59.5)</b>	<b>(163.3)</b>
<b>Pro-forma EPS (diluted) (p)</b>	<b>(3.7)</b>	<b>(3.3)</b>	<b>(1.4)</b>	<b>0.9</b>
DPS (Ordinary) (p)	0.0	0.0	0.0	0.0
DPS (Special) (p)	0.0	0.0	0.0	0.0
DPS (Total) (p)	0.0	0.0	0.0	0.0

Source: Liberum

Figure 8: Cash flow statement (£m)

December year-end	2022A	2023E	2024E	2025E
Reported EBIT	(1.5)	(0.5)	1.1	2.8
Profit in associates	0.0	0.0	0.0	0.0
Depreciation	1.0	1.2	1.3	1.3
Amortisation	0.3	0.3	0.3	0.3
Loss / (profit) on sale of PPE	(0.0)	0.0	0.0	0.0
Share based payments	0.2	0.2	0.2	0.2
Increase/(Decrease) in provisions	0.2	0.0	0.0	0.0
Loss / (Gain) on business disposal	0.0	0.0	0.0	0.0
Other	(2.9)	(0.8)	(0.5)	0.0
<b>Operating cash flows before movements in working capital</b>	<b>(2.8)</b>	<b>0.5</b>	<b>2.4</b>	<b>4.7</b>
(Increase) / decrease in inventories	(1.4)	(0.1)	(0.2)	(0.3)
(Increase) / decrease in receivables	(0.9)	(0.7)	(0.8)	(0.9)
(Decrease) / increase in payables	(0.2)	0.4	0.6	0.7
(Increase) / decrease in working capital	(2.6)	(0.3)	(0.4)	(0.5)
<b>Cash generated by operations</b>	<b>(5.4)</b>	<b>0.2</b>	<b>1.9</b>	<b>4.2</b>
Tax paid	(0.1)	(0.6)	(0.7)	(0.8)
<b>Net cash flow from operating activities</b>	<b>(8.8)</b>	<b>(0.3)</b>	<b>1.3</b>	<b>3.4</b>
Purchase of PPE	(2.9)	(1.4)	(1.4)	(0.9)
Purchase of other intangibles	(0.1)	(0.4)	(0.4)	(0.3)
Disposals	0.0	0.0	0.0	0.0
Net capex	(3.0)	(1.8)	(1.7)	(1.2)
Dividends from associates	0.0	0.0	0.0	0.0
Movement in short term investments	0.0	0.0	0.0	0.0
Acquisitions	0.0	0.0	0.0	0.0
(Investments) / disposals of associates	0.0	0.0	0.0	0.0
<b>Net cash flow from investing activities</b>	<b>(3.4)</b>	<b>(1.8)</b>	<b>(1.7)</b>	<b>(1.2)</b>
Net interest received / (paid)	(0.6)	(1.0)	(1.0)	(1.0)
Equity dividends paid	(0.4)	0.0	0.0	0.0
Share issues / (repurchases)	0.1	0.0	0.0	0.0
Increase / (decrease) in borrowings	10.2	3.0	1.0	0.0
<b>Net cash flow from financing activities</b>	<b>9.3</b>	<b>2.0</b>	<b>0.0</b>	<b>(1.0)</b>
Increase in cash and cash equivalents	(3.4)	(0.4)	(0.7)	1.1
(Increase) / decrease in borrowings	0.0	0.0	0.0	0.0
Repayment of finance leases	(0.3)	(0.3)	(0.2)	(0.2)
Exchange / other	0.0	0.0	0.0	0.0
<b>(Increase) / decrease in net debt</b>	<b>9.6</b>	<b>3.5</b>	<b>1.4</b>	<b>(1.2)</b>
Net cash / (debt) (start)	(8.8)	(18.3)	(21.8)	(23.2)
<b>Net cash / (debt) (end) including leases</b>	<b>(18.3)</b>	<b>(21.8)</b>	<b>(23.2)</b>	<b>(22.0)</b>

Source: Liberum

Figure 9: Balance sheet (£m)

December year-end	2022A	2023E	2024E	2025E
Goodwill	1.3	1.3	1.3	1.3
Other intangible assets	0.9	1.0	1.1	1.0
PPE	10.4	10.6	10.6	10.3
Trade and other LT receivables	0.0	0.0	0.0	0.0
Deferred tax asset	0.0	0.0	0.0	0.0
Investments in JVs / Associates	0.0	0.0	0.0	0.0
Retirement benefit asset	0.0	0.0	0.0	0.0
Other non-current assets	0.4	0.4	0.4	0.4
<b>Fixed assets</b>	<b>13.0</b>	<b>13.3</b>	<b>13.4</b>	<b>13.0</b>
Inventories	28.1	28.9	29.7	29.9
Trade and other receivables	3.9	4.5	5.4	6.3
Cash & cash equivalents	2.3	1.9	1.2	2.3
Financial assets	0.0	0.0	0.0	0.0
Other current assets	0.0	0.0	0.0	0.0
<b>Current assets</b>	<b>34.3</b>	<b>35.4</b>	<b>36.3</b>	<b>38.5</b>
<b>Total Assets</b>	<b>47.4</b>	<b>48.7</b>	<b>49.7</b>	<b>51.6</b>
Trade payables	(3.7)	(4.2)	(4.8)	(5.5)
Borrowings	(0.4)	(0.4)	(0.4)	(0.4)
Tax liabilities	(0.4)	(0.4)	(0.4)	(0.4)
Provisions	0.0	0.0	0.0	0.0
Other current liabilities	(0.4)	(0.4)	(0.4)	(0.4)
<b>Current liabilities</b>	<b>(4.8)</b>	<b>(5.3)</b>	<b>(5.9)</b>	<b>(6.6)</b>
<b>Total assets less current liabilities</b>	<b>42.5</b>	<b>43.4</b>	<b>43.8</b>	<b>45.0</b>
<b>Net current assets</b>	<b>29.5</b>	<b>30.1</b>	<b>30.4</b>	<b>31.9</b>
Long-term borrowings and finance leases	(19.9)	(23.0)	(23.8)	(23.6)
Provisions	(0.6)	(0.6)	(0.6)	(0.6)
Other payables	(0.6)	(0.6)	(0.6)	(0.6)
Other non-current liabilities	0.0	0.0	0.0	0.0
<b>Net Assets</b>	<b>21.4</b>	<b>19.3</b>	<b>18.9</b>	<b>20.2</b>
Total equity	21.4	19.3	18.9	20.2
Minority interests	0.2	0.6	0.9	1.3
<b>Shareholders' equity</b>	<b>21.2</b>	<b>18.7</b>	<b>18.0</b>	<b>18.9</b>

Source: Liberum

**Disclaimer**

This communication has been issued in the UK by Liberum Capital Limited ("LCL") which is authorised and regulated by the Financial Conduct Authority ("FCA") and is a member of The London Stock Exchange PLC. The registered address of Liberum Capital Limited is Ropemaker Place, 25 Ropemaker Street, London EC2Y 9LY. Telephone: 020 3100 2000.

This communication has been prepared by its author(s) as non-impartial research in relation to Company (the "Company"), as such that it is inappropriate to characterise it as independent investment research, as it has not been prepared in accordance with UK legal requirements designed to promote the independence of investment research. Therefore, even if it contains a research recommendation, it should be treated as a marketing communication. However, Liberum is required by the FCA to have policies in place to identify and manage the conflicts of interest which may arise in its production, which include preventing dealing ahead. Information regarding our policies is available, [www.liberum.com](http://www.liberum.com). In addition, a list of items which could create a conflict of interest and other material interests in relation to research material is set out on LCL's website. For detailed disclosures, please refer to [www.liberum.com/legal](http://www.liberum.com/legal)

The individuals who prepared this communication may be involved in providing other financial services to the company or companies referenced herein or to other companies who might be said to be competitors of the company or companies referenced herein. As a result, both LCL and the individual employees who prepared this communication may have responsibilities that conflict with the interests of the persons who receive this communication and information may be known to LCL or persons connected with it which is not reflected in this communication.

LCL may provide or may have provided corporate services to the issuers of securities mentioned in this communication and recipients of this document should not therefore rely on this communication as being an impartial document. Accordingly, information may be known to LCL or persons connected with it which is not reflected in this material.

LCL has put in place procedures, systems and controls to identify and prevent (where this is possible) conflicts of interest and also has a conflicts management policy relating to its research and marketing communication activities, which is available on its website, [www.liberum.com](http://www.liberum.com). In addition, a list of items which could create a conflict of interest and other material interests in relation to research material is set out on LCL's website (see "Disclosures" below).

This communication is provided for information purposes only and should not be regarded as an offer or solicitation to buy or sell any security or other financial instrument. This communication has no regard for the specific investment objectives, financial situation and needs of any specific person or entity. LCL and/or its officers, directors and employees may have or take positions in securities of companies mentioned in this communication (or in any related investment) and may from time to time dispose of any such positions and may also provide corporate finance or underwriting services for or relating to those companies, for which it is remunerated. LCL analysts, including the author of this communication, receive compensation based on a number of factors including the quality of research, client feedback, firm profitability and normal competitive factors. This communication is based on materials and sources that are believed to be reliable; however, they are not independently verified and are not guaranteed as being accurate. All expressions of opinions, projections, forecasts and estimates constitute a judgment and are those of the author and the research department of LCL only, and should not be relied upon and are subject to change without notice. The content of this communication may have been disclosed to the company referenced herein prior to dissemination in order to verify factual accuracy, however the company takes no responsibility for the accuracy or otherwise of any opinion, projection,

forecast or estimate contained within this communication. While LCL endeavours to update its research communications from time to time it is under no obligation to do so. No representation or warranty either expressed or implied, is made nor responsibility of any kind is accepted by LCL, its officers or employees either as to the accuracy or completeness of any information stated in this document. LCL shall not be liable for any direct or indirect damages, including lost profits, arising in any way from use of all or any of the information contained in this communication.

LCL may have issued other communications that are inconsistent with and reach different conclusions from, the information contained in this communication. Those communications reflect the different assumptions, views and analytical methods of the individuals that prepared them.

This communication is not guaranteed to be a complete statement or summary of any securities, markets, reports or developments referred to therein.

No representation or warranty either expressed or implied, is made nor responsibility of any kind is accepted by LCL, its directors, officers, employees or agents either as to the accuracy or completeness of any information contained in this communication nor should it be relied on as such.

This communication is provided with the understanding that LCL is not acting in a fiduciary capacity and it is not a personal recommendation to you.

The investments discussed in this communication may not be eligible for sale in some states or countries and may not be suitable for all investors. Investors should make their own investment decisions based upon their own financial objectives and financial resources and, if in any doubt, should seek advice from an investment advisor.

Past performance is not necessarily a guide to future performance. The stated price of any securities mentioned herein will generally be as at the end of the business day immediately prior to the publication date on this communication unless otherwise stated and is not a representative that any transaction can be effected at this price.

This communication is confidential and may not be re-distributed, retransmitted or disclosed, in whole or in part, or in any manner, without the express written consent of LCL.

For more information on models, please contact the Analyst.

**In the United Kingdom**

This communication is for the use of (a) Professional Clients and Eligible Counterparties (such terms as defined by the rules of the FCA) of LCL and (b) other persons who are not clients of LCL who have expressed interest in receiving it and who are Qualified Investors (as defined below) and either investment professionals (persons having professional experience in matters relating to investments, as defined in Article 19(5) or Article 49(2)(a) to (d) (high net worth companies, unincorporated associations etc) of the Financial Services and Markets Act 2000 (Financial Promotions) Order 2005 (as amended) or any other persons to whom this communication for the purposes of section 21 of the Financial Services and Markets Act 2000 can otherwise lawfully be communicated).

For the purpose of clarity, this communication is not intended for and should not be relied upon by Retail Clients (as defined by the rules of the Financial Conduct Authority).

The content includes data provided by FTSE International Limited ("FTSE") © FTSE 2013. "FTSE®" is a trade mark of the London Stock Exchange Group companies and is used by FTSE under licence. All rights in the FTSE indices and / or FTSE ratings vest in FTSE and / or its licensors. Neither FTSE nor its licensors accept any liability for any errors or omissions in the FTSE indices and / or FTSE ratings or underlying data. No further distribution of FTSE data is permitted without FTSE's express written consent.

**EU Third-Party Disclaimer**

If this communication is distributed in the European Union ("EU") by Raymond James & Associates, Inc. ("RJA"), an entity registered with the United States

Securities and Exchange Commission as a broker/dealer and a member of the Financial Industry Regulatory Authority, or its independent contractors or such independent contractor's tied agents (collectively, the "independent contractors") or by LCL to clients of RJA's independent contractors, then this communication is independent third-party research prepared for and distributed in the relevant EU countries at the determination of RJA and/or the independent contractors and pursuant to an arrangement between RJA, Liberum Capital Inc. and LCL. Neither RJA, nor its independent contractors, nor any of their affiliates has or had any involvement in the production, content, or timing of this communication and neither Liberum Capital Inc. nor LCL are affiliates of RJA or its independent contractors.

This communication is distributed solely to persons who are Qualified Investors within the meaning of Article 2(e) of EU Regulation 2017/1129 (as amended or superseded), and this communication is only for such Qualified Investors whose ordinary business activities involve investing in equities, bonds, and associated securities and/or derivative securities and who have professional experience reviewing and engaging in such investments. This communication is therefore not intended to be distributed or passed on, directly or indirectly, to any other class of persons, and is not intended for private individuals or those who would not be classified as "Qualified Investors." The delivery of this communication is not a recommendation to effect any transactions in the securities discussed herein, nor an endorsement of any opinion expressed herein. If you are receiving this communication in one of the relevant EU countries from RJA or its independent contractors, or LCL, as a consequence of being a client of RJA's independent contractors, RJA accepts responsibility for the distribution of the communication. Any Qualified Investor who receives this communication from RJA, its independent contractors or directly from LCL as a consequence of being a client of RJA's independent contractors, is receiving such communication solely as a result of its relationship with RJA or its independent contractor, as applicable, and such recipient shall not be considered as having a relationship with Liberum Capital Inc. or LCL. For additional disclosures about RJA, including those related to material conflicts of interest, please visit: <https://www.raymondjames.com/-/media/rj/dotcom/files/legal-disclosures/Liberum-disclosures.pdf>. For further information regarding the above or related to the above-mentioned securities, please contact RJA's independent contractors.

**For US Investors**

This document is a marketing communication and has been prepared and distributed by LCL. Liberum Capital Inc. is a U.S. registered broker-dealer and an affiliate of LCL. This document is distributed solely to persons who qualify as "Major U.S. Institutional Investors" or "U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934. This communication is only for those Major U.S. Institutional Investors and U.S. Institutional Investors whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major Institutional Investor must not rely on this communication. The delivery of this research communication to any person in the United States of America is not a recommendation to affect any transactions in the securities discussed herein, nor an endorsement of any opinion expressed herein. Liberum Capital Inc. is a FINRA/SIPC member and takes responsibility for the content of this communication. Any U.S. recipient of this communication that is not a registered broker-dealer or a bank acting in a broker or dealer capacity and that wishes further information regarding the securities or to place an order in any of the above-mentioned securities please contact a registered representative of Liberum Capital Inc.

Analyst Certification: The analyst(s) who prepared this communication hereby certifies that all of the views expressed in this communication accurately reflect his / her personal views about the subject securities or issuers. No part of his/her compensation was, is,



or will be directly or indirectly related to the inclusion of specific recommendations or views in this communication. The analyst(s) responsible for preparing this research communication received compensation that is based upon various factors, including total revenues of Liberum Capital Inc. and its affiliates, a portion of which are or have been generated by investment banking activities of Liberum Capital Inc. and its affiliates. Research analysts, and their households, are prohibited from dealing in the securities of a company which they cover in any manner.

LCL may make a market in the securities mentioned in the communication and may act as principal with regard to sales and purchases of this security. LCL may have managed or co-managed a public offering of any of the securities mentioned in the past 12 months. LCL may have received compensation for investment banking services from any of the companies mentioned in the past 12 months. LCL may receive compensation for investment banking services from any of the companies mentioned within the next 3 months.

Liberum Capital Inc. does not make a market on other securities mentioned in the communication. Liberum Capital Inc. has not managed or co-managed a public offering of any of the securities mentioned in the past 12 months. Liberum Capital Inc. has not received compensation for investment banking services from any of the companies mentioned in the past 12 months. Liberum Capital Inc. neither expects to receive nor intends to seek compensation for investment banking services from any of the companies mentioned within the next 3 months.

**United States Third-Party Disclaimer:**

If this communication is distributed in the United States of America by RJA, an entity registered with the Securities and Exchange Commission ("SEC") as a broker/dealer and a member of the Financial Industry Regulatory Authority, then this communication is independent third-party research prepared for and distributed in the United States of America by RJA pursuant to an arrangement between RJA, Liberum Capital Inc. and LCL. Liberum Capital Inc. and LCL are not affiliates of RJA. Any transactions in securities discussed in this communication must be effected through a broker/dealer registered with the SEC, such as Liberum Capital, Inc. or RJA.

This communication is distributed solely to persons who qualify as "U.S. Institutional Investors" or as "Major U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934, as amended, and is not intended to be distributed or passed on, directly or indirectly, to any other class of persons, and is therefore not intended for private individuals or those who would not be classified as U.S. Institutional Investors or as Major U.S. Institutional Investors. This communication is only for U.S. Institutional Investors or Major U.S. Institutional Investors whose ordinary business activities involve investing in equities, bonds, and associated securities and/or derivative securities and who have professional experience reviewing and engaging in such investments. The delivery of this communication is not a recommendation to affect any transactions in the securities discussed herein, nor an endorsement of any opinion expressed herein. If you are receiving this communication in the U.S. from RJA, RJA accepts responsibility for the content and distribution of this communication. For additional disclosures about RJA, including those related to material conflicts of interest, please visit: <https://www.raymondjames.com/-/media/rj/dotcom/files/legal-disclosures/Liberum-disclosures.pdf>.

**For Canadian Investors**

This information is not, and under no circumstances is to be construed as, an advertisement or a public offering of the securities described herein in Canada or any province or territory thereof. Under no circumstances is this information to be construed as an offer to sell securities or as a solicitation of an offer to buy securities in any jurisdiction of Canada. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer

properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the registration requirement in the relevant province or territory of Canada in which such offer or sale is made. This information is not, and under no circumstances is it to be construed as, a prospectus, an offering memorandum, an advertisement or a public offering of any securities in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon these materials, the information contained herein or the merits of the securities described herein and any representation to the contrary is an offence. If you are located in Canada, this information has been made available to you based on your representation that you are an "accredited investor" as such term is defined in National Instrument 45-106 Prospectus Exemptions and a "permitted client" as such term is defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Under no circumstances is the information contained herein to be construed as investment advice in any province or territory of Canada nor should it be construed as being tailored to the needs of the recipient. Canadian recipients are advised that Liberum Capital Inc., its affiliates and its authorized agents are not responsible for, nor do they accept, any liability whatsoever for any direct or consequential loss arising from any use of this research communication or the information contained herein.

**For Swiss Investors**

This publication is intended to be distributed to professional investors in circumstances such that there is no public offer. This publication does not constitute a prospectus within the meaning of Articles 652a and 1156 of the Swiss Code of Obligations.

**For Australian Investors**

This communication is distributed in Australia by Liberum Capital Limited which is exempt from the requirement to hold an Australian Financial Services Licence. This communication may only be distributed to a "Wholesale Client" (within the meaning of section 761G of the Corporations Act 2001 (Cth) (the "Act"). Liberum Capital Limited is regulated by the FCA under UK laws, which differ from Australian laws.

**Other countries**

Laws and regulations of other countries may also restrict the distribution of this communication. Persons in possession of this communication should inform themselves about possible legal restrictions and observe accordingly.

**Disclosures**

Please refer to [www.liberum.com/legal](http://www.liberum.com/legal) for regulatory disclosures.

## Research

### Alternatives

#### Shonil Chande

+44 (0) 20 3100 2259  
shonil.chande@liberum.com

### Energy Transition & Infrastructure

#### Joseph Pepper

+44 (0) 20 3100 2271  
joseph.pepper@liberum.com

### Building

#### Building Materials, Equipment Hire & Housebuilders

#### Charlie Campbell

+44 (0)20 3100 2090  
charlie.campbell@liberum.com

#### Edward Prest

+44 (0)20 3100 2096  
edward.prest@liberum.com

### Consumer

#### Consumer Discretionary

#### Adam Tomlinson

+44 (0)20 3100 2174  
adam.tomlinson@liberum.com

#### Consumer Goods

#### Anubhav Malhotra

+44 (0)20 3100 2197  
anubhav.malhotra@liberum.com

### Roving

#### Wayne Brown

+44 (0) 20 3100 2082  
wayne.brown@liberum.com

### Financials and FinTech

#### Financial & Professional Services

#### James Allen

+44 (0)20 3100 2088  
james.allen@liberum.com

### FinTech

#### Nick Anderson

+44 (0)20 3100 2076  
nick.anderson@liberum.com

### Healthcare

#### Edward Thomason

+44 (0) 20 3100 2092  
edward.thomason@liberum.com

#### Seb Jantet

+44 (0) 20 3100 2047  
seb.jantet@liberum.com

### Industrials

#### Capital Goods

#### Edward Maravanyika

+44 (0) 20 3100 2275  
edward.maravanyika@liberum.com

### Leisure & Travel

#### Leisure

#### Anna Barnfather

+44 (0)20 3100 2176  
anna.barnfather@liberum.com

#### Nishant Dahad

+44 (0)20 3100 2068  
nishant.dahad@liberum.com

### Real Estate

#### Chris Spearing

+44 (0)20 3100 2169  
chris.spearing@liberum.com

#### Bjorn Zietsman

+44 (0)20 3100 2067  
bjorn.zietsman@liberum.com

## Convertibles

#### Simon Smith

+44 (0)20 3100 2171  
simon.smith@liberum.com

### Resources

#### Mining & Commodities

#### Ben Davis

+44 (0)20 3100 2083  
ben.davis@liberum.com

#### Yuen Low

+44 (0)20 3100 2091  
yuen.low@liberum.com

#### Tom Price

+44 (0) 203 100 2085  
tom.price@liberum.com

### New Energy

#### Sam Wahab

+44 (0)20 3100 2095  
sam.wahab@liberum.com

### Oil & Gas

#### David Hewitt

+353 87 704 4038  
david.hewitt@liberum.com

### Strategy, Accounting and Sustainability

#### Joachim Klement

+44 (0)20 3100 2073  
joachim.klement@liberum.com

#### Dr Kenneth Lee

+44 (0) 203 100 2069  
kenneth.lee@liberum.com

#### Susana Cruz

+44 (0) 203 100 2277  
susana.cruz@liberum.com

### Support Services

#### Support Services & Special Situations

#### Joe Brent (Head of Research)

+44 (0)20 3100 2272  
joe.brent@liberum.com

#### Sanjay Vidyarthi

+44 (0)20 3100 2278  
sanjay.vidyarthi@liberum.com

#### Alexandro da Silva O'Hanlon

+44 (0)20 3100 2268  
alex.ohanlon@liberum.com

### Transport

#### Gerald Khoo

+44 (0)20 3100 2195  
gerald.khoo@liberum.com

### Technology & Media

#### Ciaran Donnelly

+44 (0)20 3100 2071  
ciaran.donnelly@liberum.com

#### Andrew Ripper

+44 (0)20 3100 2086  
andrew.ripper@liberum.com

#### William Larwood

+44 (0)20 3100 2097  
william.larwood@liberum.com

### Pool Analyst

#### Jon Byrne

+44 (0) 20 3100 2074  
jon.byrne@liberum.com

#### Richard Tomblin

+44 (0)20 3100 2172  
richard.tomblin@liberum.com

## Corporate & Investor Relations

#### Natalie Clarke

+44 (0)20 3100 2191  
natalie.clarke@liberum.com

#### Chris Cooper

+44 (0)20 3100 2258  
chris.cooper@liberum.com

#### Nicole Barbour

+44 (0)20 3100 2182  
nicole.barbour@liberum.com

#### Skaiste Miglin

+44 (0)20 3100 2187  
skaiste.miglin@liberum.com

#### Marcio Remedios

+44 (0)20 3100 2033  
marcio.remedios@liberum.com

#### Martin Parker

+44 (0)20 3100 2065  
martin.parker@liberum.com

#### Connie Owens

+44 (0)20 3100 2021  
connie.owens@liberum.com

## Equity Sales – London

#### David Parsons (Head of Equities)

+44 (0)20 3100 2125  
david.parsons@liberum.com

#### Oliver Baxendale (Head of Sales)

+44 (0)20 3100 2193  
oliver.baxendale@liberum.com

#### William Game

+44 (0)20 3100 2120  
william.game@liberum.com

#### Joel Knight

+44 (0)20 3100 2030  
joel.knight@liberum.com

#### Guy Froud

+44 (0)20 3100 2242  
guy.froud@liberum.com

#### Oliver Houghton

+44 (0)20 3100 2129  
oliver.houghton@liberum.com

#### Paras Amlani

+44 (0)20 3100 2113  
paras.amlani@liberum.com

## Specialist Sales

### Real Estate

#### John Mozley

+44 (0)20 3100 2115  
john.mozley@liberum.com

### New Energy, Mining and Industrials

#### Simon Fickling

+44 (0)20 3100 2112  
simon.fickling@liberum.com

### Alternative Funds

#### James Shields

+44 (0) 20 3100 2266  
james.shields@liberum.com

#### Tom Biltcliffe

+44 (0) 20 3100 2253  
tom.biltcliffe@liberum.com

## Equity Sales – New York

#### Julian Plant (CEO - USA)

+1 212 596 4824  
julian.plant@liberum.com

#### Tony Beckett

+1 212 596 4807  
tony.beckett@liberum.com

#### Sarah Giovannetti

+1 212 596 4818  
sarah.port@liberum.com

#### Peter Penha

+1 212 596 4808  
peter.penha@liberum.com

## Sales Trading

#### Graham Smith (Head of Execution)

+44 (0)20 3100 2101  
graham.smith@liberum.com

#### Nick Worthington

+44 (0)20 3100 2106  
nick.worthington@liberum.com

#### Mark O'Hara (Head of Sales Trading)

+44 (0)20 3100 2061  
mark.o'hara@liberum.com

#### David Thompson

+44 (0)20 3100 2062  
david.thompson@liberum.com

## Alternative Execution

#### Dominic Lowres

(Head of Execution Strategy)  
+44 (0)20 3100 2103  
dominic.lowres@liberum.com

#### Rhys Henry

+44 (0)20 3100 2119  
rhys.henry@liberum.com

#### Cameron Symes

+44 (0)20 3100 2109  
cameron.symes@liberum.com

## Agency Trading

#### Simon Warrener

+44 (0)20 3100 2108  
simon.warrener@liberum.com

#### Matt Hudson

+44 (0)20 3100 2063  
matthew.hudson@liberum.com

## Market Making

#### James Cass

(Head of Small & Mid Cap Trading)  
+44 (0)20 3100 2205  
james.cass@liberum.com

#### David O'Gram

+44 (0)20 3100 2201  
david.ogram@liberum.com

#### Marc Wilkinson

+44 (0)20 3100 2206  
marc.wilkinson@liberum.com

#### Peter Jennings

+44 (0)20 3100 2207  
peter.jennings@liberum.com

#### Peter Turner

+44 (0)20 3100 2203  
peter.turner@liberum.com

#### STX 77440

+44 (0)20 3100 2200

## Retail Execution

#### Stuart Rutherford (Head of Retail Execution Services)

+44 (0)20 3100 2110  
stuart.rutherford@liberum.com