

The Biotech Growth Trust

Keeping the faith in smaller-cap biotech stocks

The Biotech Growth Trust (BIOG) has been managed by global healthcare specialist OrbiMed Capital since May 2005. During its tenure, the trust has outperformed its benchmark, the NASDAQ Biotechnology Index. OrbiMed favours the prospects for emerging (smaller-cap) biotech stocks rather than large-cap biotech businesses, as this is where the most industry innovation occurs. BIOG's manager, Geoff Hsu, considers innovation to be the most important driver of the biotech sector's long-term positive performance. He believes that we remain in a 'golden era', evidenced by an expanding pipeline of new drug candidates across all therapeutic areas. The manager expects an acceleration in mergers and acquisitions (M&A) as major pharma companies, facing patent expirations, seek to bolster their product pipelines by acquiring smaller biotech companies.

BIOG webinar with Geoff Hsu (1 March 2023)



Source: BIOG

The analyst's view

It may be an opportune time for investors to consider the prospects for biotech stocks. Between early February 2021 and early June 2022, a period characterised by rising inflation and higher interest rates, the sector experienced a drawdown that was unprecedented in duration and in both absolute and relative performance terms. This has led to a major disconnect between favourable industry fundamentals and very modest biotech company valuations. BIOG has a global mandate, so Hsu and his team can select what they consider to be the best biotech investment ideas in both developed and emerging markets, and can invest up to 10% of the portfolio in unquoted businesses. The trust experienced a period of underperformance during the 2021–22 biotech sector drawdown due to its large overweight exposure to emerging biotech stocks, which performed relatively poorly. However, the manager is confident that this situation will change and emerging biotech stocks will outperform, helped by an uptick in industry M&A.

Potential for narrower discount

BIOG's 9.2% share price discount to cum-income NAV is wider than the 3.9% to 6.8% range of average discounts over the last one, three, five and 10 years. There is potential for a narrower discount; the trust considerably outperformed its benchmark between Q120 and Q121, and during this time BIOG's discount narrowed, and its shares regularly traded close to NAV.

Investment trusts Biotech equities

15 March 2023

Price 837p
Market cap £327m
Total assets £409m

NAV* 921.5p
 Discount to NAV 9.2%

*Including income. At 13 March 2023.

Yield 0.0%
 Ordinary shares in issue 39.1m
 Code/ISIN BIOG/GB0000385517
 Primary exchange LSE
 AIC sector Biotechnology & Healthcare
 Financial year end 31 March
 52-week high/low 1,046.0p 753.0p
 NAV* high/low 1,130.4p 782.4p

*Including income

Net gearing* 6.2%

*At 28 February 2023.

Fund objective

The Biotech Growth Trust seeks capital appreciation through investing in the worldwide biotechnology industry. Performance is measured against its benchmark index, the NASDAQ Biotechnology Index (sterling adjusted).

Bull points

- The biotech sector has delivered above-average returns for shareholders over the long term.
- Industry fundamentals and valuations are favourable but are currently being overlooked by investors.
- OrbiMed is a global leader in healthcare research and investment, with c \$17.4bn of assets under management.

Bear points

- Coming out of a difficult performance period between early 2021 and mid-2022.
- The biotech sector can be volatile.
- Periodic political pressure.

Analyst

Mel Jenner +44 (0)20 3077 5700
investmenttrusts@edisongroup.com
[Edison profile page](#)

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The fund manager: Geoff Hsu

The manager's view: Continuing to favour emerging biotechs

BIOG has experienced a difficult period of performance since Q121. This can primarily be attributed to OrbiMed's preference for smaller-cap biotech stocks, which have meaningfully underperformed large-cap biotech stocks. Hsu is confident that emerging biotech companies are extremely oversold, and the performance gap will close.

Exhibit 1: Cap breakdown at 31 March 2021 and subsequent share price performance

% unless stated	BIOG portfolio weight	NASDAQ Biotechnology Index	Delta (pp)	To 31 January 2023 (pp)
Large cap (> \$10bn)	26	59	(33)	3.7
Mid cap (\$2–10bn)	22	29	(7)	(32.1)
Small cap (< \$2bn)	51	13	38	(35.3)
Total	100	100		

Source: BIOG, Edison Investment Research. Note: Numbers subject to rounding.

Looking at the performance of the equal weighted biotech XBI Index versus the US bellwether S&P 500 Index since 2006, there were four notable relative drawdowns; each of the first three were followed by a period of significant outperformance. The latest move between 8 February 2021 and 2 June 2022 of -73.3% was the longest, the largest absolute and the largest relative drawdown. Since the June 2022 low point, biotech stocks are performing relatively better. The manager believes that this momentum will continue.

Hsu is very bullish on the outlook for small-cap biotech stocks on valuation grounds. Considering biotech companies with market caps greater than \$10m that are not yet profitable, and comparing their aggregate median market cap with net cash on their balance sheets, small-cap biotech stocks are looking very attractively valued. This metric is objective as it does not depend on the manager's view on the probability of success of drugs in a company's pipeline or his revenue projections. The current median market cap-to-net cash multiple is at a 20-year low, meaning it is below levels seen in the dot.com bust and the global financial crisis. Hsu believes that the valuation contraction experienced by smaller-cap biotech stocks is unwarranted. In addition, around 25% (more than 120) of biotech stocks with market caps greater than \$10m are trading below the level of net cash on their balance sheets.

Share prices of small-cap biotech stocks, along with those of smaller growth companies in other industries, have been particularly negatively affected by rising interest rates as the Federal Reserve attempts to combat higher inflation. The manager believes that the US 10-year government bond will stabilise in the 3.5% to 4.0% range, and further interest rate hikes this year are already priced in; he anticipates interest rate cuts in 2024 as inflation is brought under control. Hence, Hsu does not expect incremental interest rate headwinds for biotech stocks and considers that lower rates next year would be a tailwind.

If there is an economic downturn, the manager explains that during the last four US recessions healthcare stocks outperformed the broader market. The areas that performed the best during the recessions (on average) were large-cap biotech stocks followed by the XBI index. Hence, if there is a US recession, Hsu is hopeful that biotech stocks will perform relatively well.

BIOG has a mandate to invest in biotech innovation worldwide and the trust has an allocation to China, which is experiencing a higher level of innovation. There was a broad drawdown in the Chinese stock market due to the government's zero-COVID-19 policy that dampened economic growth. The manager says that now the economy has reopened, there are good prospects for a recovery in China's healthcare sector.

Hsu is keen to emphasise that over the last two years, biotech share prices have disconnected from industry fundamentals, which he believes remain very strong. The manager says that innovation is at the heart of value creation for the biotech sector, and he firmly believes that we are still in a 'golden era' of innovation. This is reflected in the industry pipeline, which continues to grow. In the last five years there has been a 68% increase in the number of drug candidates, and the growth is across all therapeutic areas. Innovation is driving a series of novel next-generation drug-development technologies such as RNA therapeutics, cell therapy, gene editing and gene therapy. Hsu believes that the emerging technologies are still in the very early stages of reaching their full potential, and he expects dozens more next-generation products to ultimately reach the market over the next several years.

When biotech drugs are launched, they have the potential to generate significant revenue for the companies involved; consensus peak sales estimates can exceed \$10bn. Many biotech innovators get taken out by a larger player when a new product is sufficiently de-risked or launched. Most of the innovation in the biotech sector is from emerging biotech companies; over time their share of industry R&D has increased and now makes up around two-thirds of the total spend. In 2021, more than 50% of new drug launches originated from emerging biotech firms. BIOG has exposure to a range of novel technologies including: gene therapy/gene editing (17.2% of end-December 2022 NAV); oligonucleotide therapeutics (15.4%); and antibody-drug conjugates (6.1%).

The manager explains that investors had become overly negative about clinical/regulatory catalysts, but in H222 there was a series of positive outcomes such as Phase III results from Eisai's and Biogen's Alzheimer's drug and Phase II results from Merck's and Moderna's mRNA cancer vaccine in melanoma. These positive catalysts led to significant share price appreciation for the companies involved. For 2023, there are three areas where Hsu thinks there could be positive catalysts: gene therapy, oncology and kidney disease. The manager comments that BIOG owns companies exposed to all three of these areas and they all have potential clinical or regulatory catalysts in 2023.

Hsu expects an acceleration in biopharma M&A, which historically has been an important driver of biotech share prices. In 2023, portfolio company CinCor Pharma was acquired by AstraZeneca for a greater than 200% premium (including contingent value rights). The manager believes that there are other companies in BIOG's portfolio that could receive takeover bids. This view is supported by the fact that major pharma companies face a patent cliff for some of their most important products in the second half of this decade; hence, they have an urgent need to acquire biotech companies to fill their revenue gaps. Humira, owned by AbbVie, is the best-selling drug in the world (c \$21bn global sales in 2021) and has just lost exclusivity. Other important patent expirations are Bristol-Myers Squibb's Eliquis in 2026 (c \$11bn) and Merck's Keytruda in 2028 (c \$17bn).

Drug price reform had been an overhang for the biotech sector for several years, but in August 2022 drug price legislation was finally passed in the US as part of the Democrats' Inflation Reduction Act. The impact of the bill is deemed manageable for the biotech industry and Hsu thinks that Congress is unlikely to revisit drug pricing for the next several years, particularly now that Republicans control the House of Representatives.

Current portfolio positioning

At end-February 2023, BIOG's top 10 holdings made up 41.5% of the fund, which was a higher concentration compared with 37.0% a year before; five names were common to both periods. The portfolio had 61 positions, which was a 22.8% reduction compared with 79 at end-February 2022. Hsu explains that BIOG's portfolio turnover is relatively high, running at c 100% pa, as this keeps the portfolio fresh with new ideas, which he considers important in terms of maximising the trust's performance. The manager notes that once biotech companies have had a significant value-

creating catalyst, their share prices can languish while waiting for the next value inflection point. Hence it may be better to sell these companies and reinvest the proceeds in other businesses that have a potential near-term value-creating catalyst. However, Hsu also admits that sometimes investments are unsuccessful, and it is better to just move on from those ideas.

Exhibit 2: Top 10 holdings (at 28 February 2023)

Company	Country	Sector	Portfolio weight %	
			28 February 2023	28 February 2022*
Biogen	US	Major biotech	5.4	N/A
Sarepta Therapeutics	US	Emerging biotech	5.2	N/A
BioMarin Pharmaceutical	US	Emerging biotech	4.9	4.4
Keros Therapeutics	US	Emerging biotech	4.3	3.9
Ionis Pharmaceuticals	US	Emerging biotech	3.9	N/A
Yisheng Biopharma**	China	Emerging biotech	3.8	3.3
Syndax Pharmaceuticals	US	Emerging biotech	3.8	3.2
Mersana Therapeutics	US	Emerging biotech	3.5	N/A
Xenon Pharmaceuticals	Canada	Emerging biotech	3.4	3.5
XtalPi preferred**	China	Emerging biotech	3.3	N/A
Top 10 (% of portfolio)			41.5	37.0

Source: BIOG, Edison Investment Research. Note *N/A where not in end-February 2022 top 10. **Unquoted.

As shown in Exhibit 3 below, over the 12 months to the end of February 2022, the largest changes in BIOG's geographic exposure were a higher weighting to North American biotech companies (+4.8pp) and a 3.2pp lower allocation to continental European stocks. At 28 February 2023, the portfolio weighting in Chinese companies was 12.4pp (7.6pp unquoted and 4.8pp listed).

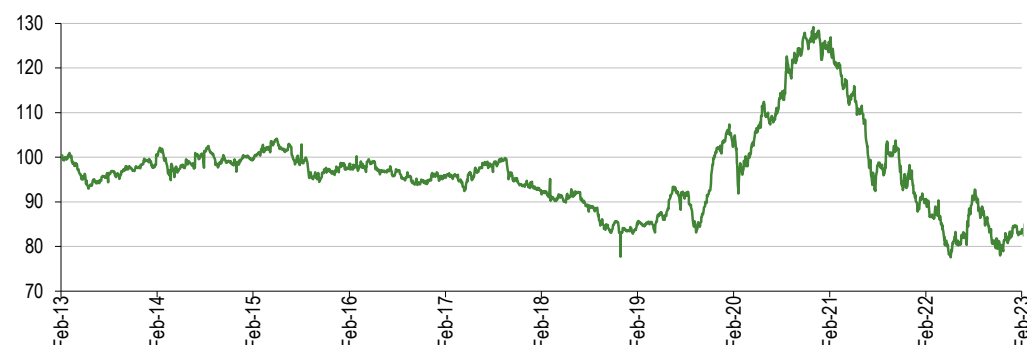
Exhibit 3: Portfolio geographic breakdown (%)

Sector	End-February 2023	End-February 2022	Change (pp)
North America	79.1	74.3	4.8
Unquoted*	8.8	8.1	0.7
Continental Europe	6.0	9.2	(3.2)
China (quoted)	4.8	6.6	(1.8)
UK	1.3	0.7	0.6
Singapore	0.0	0.3	(0.3)
South Korea	0.0	0.8	(0.8)
Total	100.0	100.0	

Source: BIOG, Edison Investment Research. Note: Adjusted for gearing. *Of the 8.8% unquoted investments at end-February 2023, 7.6% was in China, 0.4% was in Asia and 0.1% in Canada.

Performance: Relative performance bottoming

Exhibit 4: NAV performance versus benchmark over 10 years

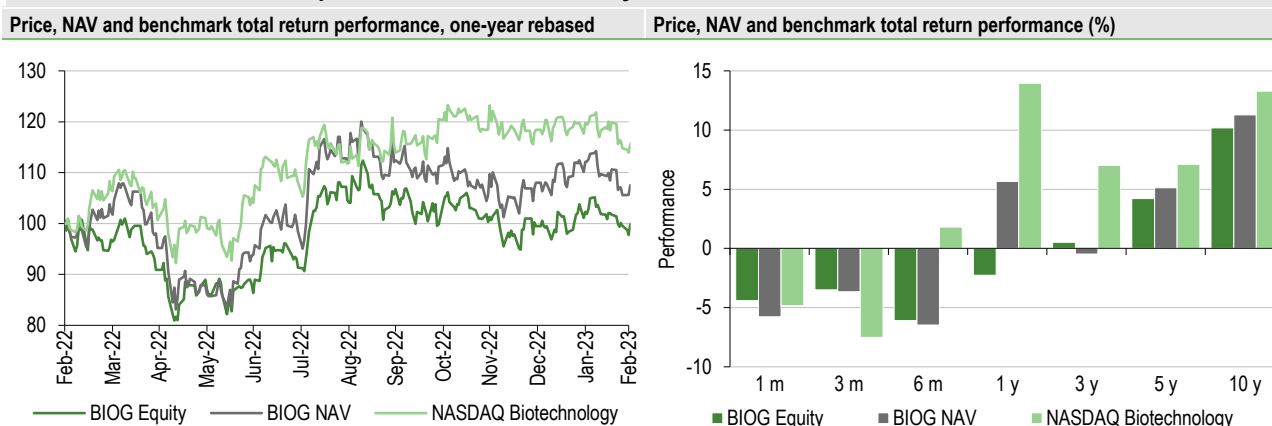


Source: Refinitiv, Edison Investment Research

BIOG experienced a difficult period of relative performance from early 2021 to mid-2022 (Exhibit 4) due to its heavy overweight exposure to emerging biotech stocks, which significantly lagged large-cap biotech stocks over the period, along with the trust's Chinese exposure. However, data from OrbiMed show that since the firm took over the management of BIOG in May 2005 to the end of

January 2023, the trust has outperformed. BIOG's NAV total return was +957.8%, while the NASDAQ Biotechnology Index rose by 850.6% (both in sterling terms).

Exhibit 5: Investment trust performance to 28 February 2023



Source: Refinitiv, Edison Investment Research. Note: Three-, five- and 10-year performance figures annualised.

Unfortunately, BIOG's underperformance over a few quarters in 2021 and 2022, highlighted above, has negatively affected its longer-term track record, as shown below in Exhibit 6. Except for the last three months, the trust's NAV has lagged the NASDAQ Biotechnology Index over all periods shown. However, it is worth noting how well BIOG has performed compared with the broad UK market over the last decade.

Exhibit 6: Share price and NAV total return performance, relative to indices (%)

	One month	Three months	Six months	One year	Three years	Five years	10 years
Price relative to NASDAQ Biotechnology	0.5	4.4	(7.8)	(14.2)	(17.1)	(12.8)	(24.3)
NAV relative to NASDAQ Biotechnology	(1.0)	4.2	(8.1)	(7.3)	(19.5)	(8.9)	(16.4)
Price relative to World-DS Pharm & Bio	(1.8)	4.1	(7.1)	(12.6)	(24.0)	(24.0)	(13.3)
NAV relative to World-DS Pharm & Bio	(3.2)	3.9	(7.5)	(5.5)	(26.2)	(20.6)	(4.3)
Price relative to MSCI World	(3.7)	(2.1)	(6.3)	(5.3)	(28.5)	(24.5)	(14.0)
NAV relative to MSCI World	(5.1)	(2.2)	(6.7)	2.4	(30.6)	(21.1)	(5.1)
Price relative to CBOE UK All Companies	(6.0)	(7.8)	(14.1)	(9.7)	(21.8)	(4.8)	42.8
NAV relative to CBOE UK All Companies	(7.4)	(8.0)	(14.5)	(2.4)	(24.0)	(0.5)	57.7

Source: Refinitiv, Edison Investment Research. Note: Data to end-February 2023. Geometric calculation.

Exhibit 7: Five-year discrete performance data

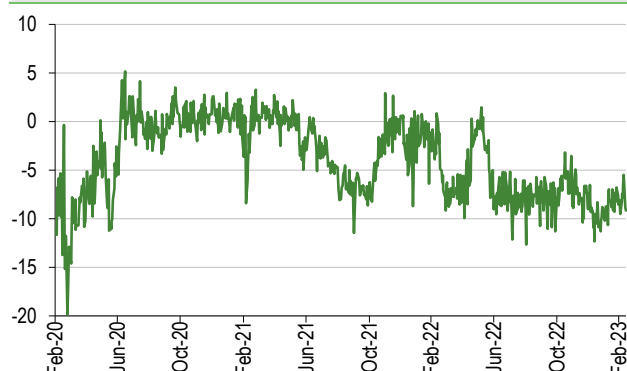
12 months ending	Share price (%)	NAV (%)	NASDAQ Biotech (%)	World-DS Pharm & Bio (%)	MSCI World (%)
28/02/19	(2.2)	0.5	8.6	10.8	4.6
29/02/20	23.8	29.7	6.0	9.2	9.6
28/02/21	69.2	52.8	26.6	11.3	18.8
28/02/22	(38.6)	(38.9)	(15.0)	7.4	15.9
28/02/23	(2.3)	5.7	14.0	11.8	3.2

Source: Refinitiv. Note: All % on a total return basis in pounds sterling.

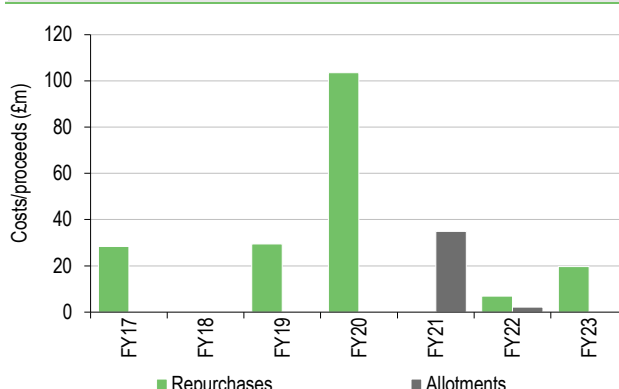
Valuation: Discount wider than historical averages

BIOG's 9.2% share price discount to cum-income NAV is towards the wider end of the 1.5% premium to 12.7% discount valuation range over the last 12 months. It is larger than the 6.8%, 3.9%, 5.3% and 5.1% average discounts over the last one, three, five and 10 years, respectively. There is scope for a higher valuation if BIOG's relative performance improves.

Renewed annually, the board has the authority to purchase up to 14.99% and allot up to 10% of BIOG's issued share capital. It remains committed to limiting the discount to 6% in normal market conditions. So far in FY23, c 2.1m shares have been repurchased at a cost of c £19.7m.

Exhibit 8: Discount over three years (%)


Source: Refinitiv, Edison Investment Research

Exhibit 9: Buybacks and issuance


Source: Morningstar, Edison Investment Research

Fund profile: All-cap, global biotech exposure

BIOG was launched in June 1997 and is listed on the Main Market of the London Stock Exchange. The trust is managed by Geoff Hsu at OrbiMed Capital, which is a global healthcare specialist investor with c \$17.4bn of assets under management. OrbiMed operates from three continents with offices in New York, San Francisco, Herzliya (Israel), Hong Kong, Shanghai and Mumbai. It has a team of more than 130 people, of whom more than 30 hold PhD or MD qualifications and around 15 are former CEOs or company founders. Hsu and 12 of his colleagues at OrbiMed working on BIOG (nine based in New York and four in Shanghai/Hong Kong) aim to generate long-term capital growth from a diversified portfolio of global biotech equities and related securities. The trust's performance is measured against the NASDAQ Biotechnology Index (sterling adjusted), and its currency exposure is unhedged. BIOG's investment guidelines state that at the time of investment, a maximum of 15% of gross assets may be held in a single stock; up to 10% may be in unquoted securities (including any private equity funds managed by OrbiMed and its affiliates); and swaps exposure is permitted up to 5% of gross assets at the time of entering into the contract. Hsu may employ gearing up to 20% of net assets.

Investment process: Bottom-up stock selection

Hsu aims to generate long-term capital growth from a globally diversified portfolio of biotech companies across the market cap spectrum. He can draw on the broad resources of OrbiMed's experienced investment team; their scientific expertise is deemed critical in terms of evaluating potential investments. Stocks are selected on a bottom-up basis following thorough in-depth fundamental research, which includes financial modelling, an assessment of research pipelines and identification of potential catalysts; company meetings are a very important element of the research process. Reasons to initiate a new position include whether an early-stage company is approaching profitability, ahead of anticipated positive clinical data, or if a business is considered a potential takeover target.

While the manager seeks out the best potential opportunities across the globe, most of the portfolio is held in US companies, reflecting its dominance in the biotech industry, although BIOG has a notable exposure to China. The trust's holdings are regularly reviewed to ensure the original investment theses are still valid and positions are sized correctly. Hsu notes that BIOG's portfolio turnover is relatively high because of its large emerging biotech exposure, where stocks can be volatile around news about clinical results.

BIOG's approach to ESG

OrbiMed believes that there is a high congruence between companies seeking to act responsibly and those that succeed in building long-term shareholder value. To the extent that it is practicable and reasonable, OrbiMed takes applicable environmental, social and corporate governance factors into account when evaluating a prospective or existing investment via a five-step process:

- Negative screening – OrbiMed does not invest in businesses that lead to negative effects on public health or wellbeing, such as banned or illegally marketed pharmaceuticals or tobacco.
- Due diligence – fundamental analysis to review material ESG factors.
- Monitoring – performance of portfolio companies is regularly monitored on multiple factors.
- Engagement – occurs with portfolio companies on a regular basis including meetings with management, voting by proxy and ESG conferences.
- Reporting – OrbiMed has introduced a quarterly ESG update covering sector and portfolio highlights, along with engagements on material issues.

OrbiMed may seek to engage with portfolio companies to promote changes in their conduct or policies and could ultimately decide to sell the investment in these firms. In some cases, it may adopt an 'activist' approach to encourage change at investee companies, which may include a proxy campaign or seeking representation on their boards of directors. The manager seeks to invest in reputable management teams and is especially cognisant of corporate governance in emerging markets, as company credentials in these regions may not be as high as those of firms in developed regions.

Gearing

Gearing of up to 20% of NAV is permitted and is employed via a loan facility with JP Morgan Securities, priced at 45bp above the US Federal Funds rate. At the end of February 2023, the trust's net gearing was 6.2%, which compares with its typical range of 5–10%.

Fees and charges

OrbiMed is paid an annual management fee of 0.65% of BIOG's NAV. It is also entitled to a performance fee of 15.0% of outperformance versus the benchmark if the cumulative outperformance since the commencement of the arrangement on 30 June 2005 gives rise to a total fee greater than the total of all performance fees paid to date.

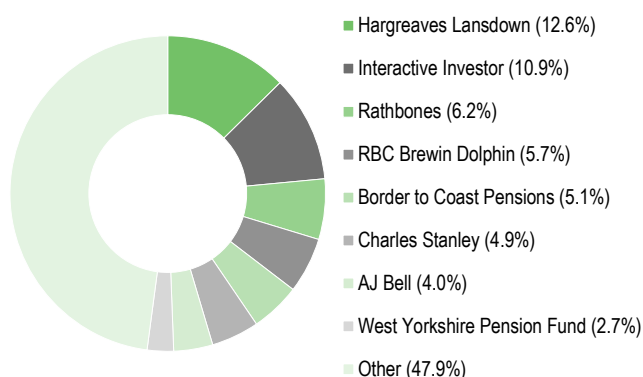
Frostrow Capital is the trust's alternative investment fund manager, providing company management, secretarial, administrative and marketing services. It receives a tiered annual fee of 0.3% of BIOG's market cap up to £500m, 0.2% between £500m and £1bn and 0.1% above £1bn. Prior to April 2021 Frostrow received 0.3% of the trust's market cap, plus a fixed fee of £60k pa and a performance fee was payable (1.5% of outperformance versus the benchmark).

In H123, BIOG's ongoing charges were 1.2%, which was 10bp higher than in FY22; no performance fees were payable.

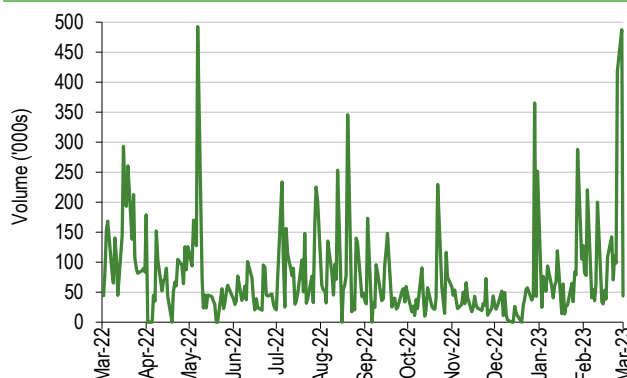
Capital structure

BIOG is a conventional investment trust with one class of share. There are currently 39.1m ordinary shares in issue and the average daily trading volume over the last 12 months is c 75k shares. At the end of FY22, BIOG's shareholder base was split as follows: 72.0% retail investors; 9.9% pension funds; 9.5% mutual funds; and 8.6% other.

The trust has a five-year continuation vote; the last was held at the July 2020 AGM where the resolution was passed by a significant majority (99.9% of votes were in favour).

Exhibit 10: Major shareholders


Source: BIOG, at 28 February 2023

Exhibit 11: Average daily volume


Source: Refinitiv. Note: 12 months to 14 March 2023.

The board

Exhibit 12: BIOG's board of directors at end-FY22

Board member	Date of appointment	Remuneration in FY22	Shareholdings at end-FY22
Andrew Joy (retired)	15 March 2012	£40,000	55,000
Steve Bates	8 July 2015	£30,000	10,000
Rt Hon Lord Willetts	11 November 2015	£27,500	Nil
Julia le Blan	12 July 2016	£30,000	7,000
Geoff Hsu	16 May 2018	Nil	Nil
Dr Nicola Shepherd	18 January 2021	£27,500	Nil
Roger Yates (chairman since July 2022)	1 December 2021	£9,667	Nil

Source: BIOG

As Geoff Hsu is a partner at OrbiMed, he is considered to be a non-independent director and his fees are waived. Roger Yates became chairman following the retirement of Andrew Joy at the 19 July 2022 AGM.

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