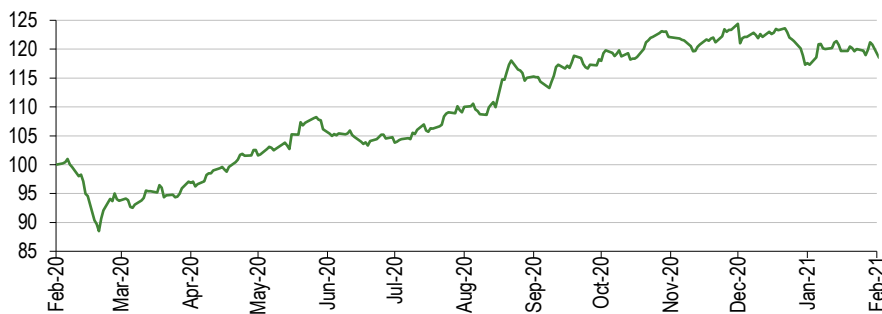


The Biotech Growth Trust

Favourable industry fundamentals

The Biotech Growth Trust (BIOG) generated another year of positive absolute and relative performance in 2020. Manager Geoff Hsu of global specialist healthcare investor OrbiMed Capital remains constructive on the outlook for biotech stocks, although he is mindful about the extended bull run in the US stock market. The manager is particularly encouraged by the high levels of biotech industry innovation; he believes that the favourable regulatory environment will continue and does not consider healthcare legislation to be a high priority for President Biden. Hsu comments that the biotech industry has 'come of age' over the last decade; he highlights the high number of initial public offerings (IPOs) in the sector, while the level of merger and acquisition (M&A) activity has remained robust despite the shift to working from home during the COVID-19 pandemic.

Encouraging NAV TR versus the benchmark over the last 12 months



Source: Refinitiv, Edison Investment Research

Why invest in biotechnology?

While mindful that biotech stocks have performed very strongly, investors may benefit from an allocation to the sector as part of a global portfolio. Industry fundamentals remain favourable; high levels of innovation offer the potential to generate additional value, while successful IPOs and ongoing M&A are supportive for biotech share prices.

The analyst's view

BIOG has delivered very strong returns over the long term and could be of interest to investors who are willing to tolerate periods of industry volatility. Over the last decade, the trust has generated NAV and share price total returns of 24.4% pa and 25.0% pa respectively, while its performance is ahead of its benchmark's over the last one, three, five and 10 years. With its high weighting to emerging and Chinese biotech stocks, BIOG offers a differentiated exposure to the sector.

Recent widening of the discount

BIOG had been regularly trading close to NAV, but the discount has widened recently due to profit taking in the technology and biotech sectors. The trust's current 8.7% share price discount to cum-income NAV compares with the 2.5% to 5.8% range of average discounts over the last one, three, five and 10 years.

Investment trusts Biotech equities

9 March 2021

Price 1,340.0p
Market cap £556m
AUM £648m

NAV* 1,467.3p
Discount to NAV 8.7%
NAV** 1,467.3p
Discount to NAV 8.7%

*Excluding income. **Including income. As at 5 March 2021.

Yield 0.0%
Ordinary shares in issue 41.5m
Code/ISIN BIOG/GB0000385517
Primary exchange LSE
AIC sector Biotechnology & Healthcare
52-week high/low 1,736.0p 710.0p
NAV* high/low 1,715.4p 784.8p
*Including income
Net gearing* 4.0%

*As at 31 January 2021.

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

- Biotech sector has delivered above-average returns for shareholders.
- BIOG has generated attractive absolute and relative returns over the long term.
- OrbiMed is a global leader in healthcare research.

Bear points

- Biotech sector can be volatile.
- Periodic concerns about US drug pricing.
- Rich valuations.

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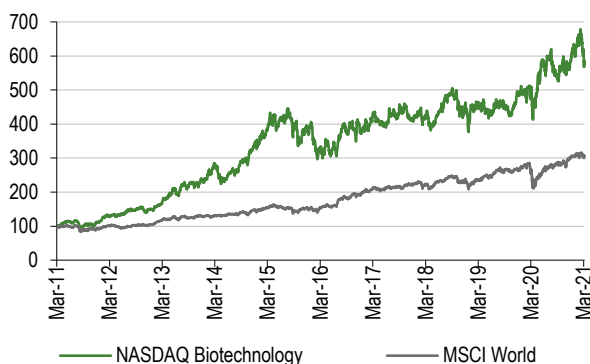
Market outlook: Fundamentals good, valuations less so

The biotech sector has delivered above-average returns over the last decade (Exhibit 1, left-hand side), and the strong momentum seen in the 2020 recovery following the coronavirus-led market sell-off, had continued in 2021 until the recent period of profit taking in the technology and biotech sectors. Investors may be focusing on the sector's positive fundamentals, which include robust volume growth, helped by demographic trends; high levels of innovation within the industry; a supportive regulatory and benign political environment; ongoing demand for IPOs; and continued M&A activity.

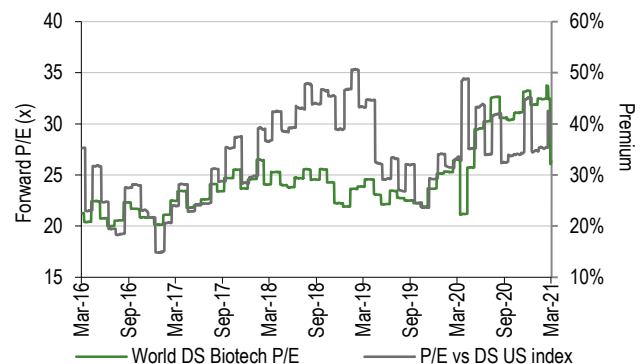
However, when taking a view on the biotech sector, investors should also take valuations into account. US stocks are 12 years into a protracted bull market and, in aggregate, the valuation of biotech shares looks somewhat rich. The DS World Biotech index is trading at a forward P/E multiple of 26.4x, which is higher than the five- and 10-year averages of 24.5x and 23.0x respectively. While a biotech fund may be a valuable addition to a global equity portfolio, investors may benefit by waiting for a general market pullback, maybe in response to higher inflation expectations/interest rates, or a period of meaningful relative sector underperformance.

Exhibit 1: Biotech index performance and valuation

NASDAQ Biotech and MSCI World indices (10 years, £-based)



DS World Biotech index P/E and relative to DS US index (past five years)



Source: Refinitiv, Edison Investment Research. Note: Valuation data at 8 March 2021.

The fund manager: Geoff Hsu

The manager's view: Constructive on the industry outlook

Hsu remains bullish on the fundamental outlook for the global biotech industry in 2021 but is mindful that biotech stocks performed strongly in 2020 (the NASDAQ Biotech Index rallied by c 25% in \$ terms), while there has been a 12-year US equity bull market. The manager is very encouraged by 'the golden era' of innovation within the drug industry. The pipeline is as full as it has ever been; between 2014 and 2019 the number of late-stage pipeline products increased by 50% across a broad range of therapeutic areas including oncology, central nervous system disorders and infectious diseases. Hsu suggests that 'there is no evidence that this momentum is abating'.

On the political front, while the Democrats regained control of the Senate, it was achieved by the narrowest of margins and their control of the House of Representatives narrowed from a 35- to a 10-seat majority. The manager suggests that President Biden has higher priorities than the healthcare industry, including dealing with COVID-19 and supporting the US economy, meaning there is unlikely to be dramatic drug price legislation.

Hsu believes that the favourable regulatory environment is unlikely to change and the high level of new product approvals will continue. In the US there have been record numbers of Food and Drug

Administration (FDA) approvals of new molecular entities in recent years: 46 in 2017, 59 in 2018, 48 in 2019 and 53 in 2020.

The manager says that the biotech IPO market has been robust over the last few years. BIOG has been an active participant in several of these deals. Hsu comments that 'most cutting-edge new technologies are typically being developed by newer companies and investor appetite for these firms is strong'. He reports that the shares of companies that have come to the market have subsequently performed strongly and, while there is often high demand for IPOs, OrbiMed's stature within the industry allows it to receive above-average allocations.

Hsu says that there was significant M&A activity in 2020 despite COVID-19 and people working from home. The largest contributor to BIOG's performance in 2020 was Immunomedics, which was taken over for \$21bn by Gilead Sciences at a greater than 100% premium. Other deals included Sanofi's acquisition of Principia Biopharma and Johnson & Johnson's acquisition of Momenta Pharmaceuticals. In December 2020, AstraZeneca bid \$39bn for Alexion Pharmaceuticals at a 45% premium, showing that there is demand for large as well as small-cap biotech companies.

The manager remains very bullish on the biotech opportunities in China, which make up more than 10% of BIOG's portfolio and are not represented in the benchmark. There are no investment guidelines restricting the trust's exposure to the country. Historically, the Chinese domestic drug market was focused on speciality generics and traditional Chinese medicines, but a number of developments in recent years are encouraging innovation. The government has committed to building a biotech ecosystem in the country as part of its 'Made in China 2025' plan, while the Chinese FDA has introduced initiatives to expedite approval of innovative drugs. Biotech companies at the pre-revenue stage are now able to list their shares on the Hong Kong Stock Exchange and the new A-share STAR board. Also, large multinational pharma companies are bringing their expertise to China and investing in drug development infrastructure; several have in-licensed innovative assets from Chinese companies. OrbiMed has a local research team in China, meaning it is well positioned to take advantage of investment opportunities in the country.

Current portfolio positioning

Exhibit 2: Top 10 holdings (as at 31 January 2021)				
Company	Country	Sector	Portfolio weight %	
			31 January 2021	31 January 2020*
Neurocrine Biosciences	US	Emerging biotech	4.1	5.8
Vertex Pharmaceuticals	US	Major biotech	3.9	8.6
Turning Point Therapeutics	US	Emerging biotech	3.8	N/A
Horizon Therapeutics	US	Emerging biotech	3.7	N/A
Alexion Pharmaceuticals	US	Major biotech	2.8	N/A
Curis	US	Emerging biotech	2.7	N/A
Biogen	US	Major biotech	2.5	N/A
Keros Therapeutics	US	Emerging biotech	2.5	N/A
Prelude Therapeutics	US	Emerging biotech	2.4	N/A
Amgen	US	Major biotech	2.4	4.5
Top 10 (% of portfolio)			30.8	45.3

Source: BIOG, Edison Investment Research. Note *N/A where not in end-January 2020 top 10.

At end-January 2021, BIOG's top 10 positions made up 30.8% of the portfolio, which was a lower concentration compared with 45.3% a year earlier; just three positions were common to both periods. The holding in Vertex Pharmaceuticals has declined, partly due to negative newsflow. In October 2020, its stock price fell by c 20% following the discontinuation of the Phase I/II trial for a product that investors considered the company's most promising pipeline asset. Hsu believes very little pipeline value is reflected in the company's share price and views its commercial execution in cystic fibrosis as very strong. The manager considers it prudent generally to have smaller position

sizes in emerging biotech companies compared with when the fund had a much larger weighting in major biotech stocks given their higher risk profiles and lower trading volumes. BIOG's portfolio is currently split c 85% and c 15% between emerging and major biotech stocks as the bulk of industry innovation comes from the smaller-cap companies. As a result, Hsu says that the number of holdings in the fund has increased to c 80 compared with a historical range of 35–45. He explains that BIOG's portfolio is actively managed; from the end of September 2020 to the end of January 2021, there were 16 new positions initiated and 12 complete disposals. The manager regularly adds to and trims positions, commenting that 'it is a very fluid process' and holdings are actively managed ahead of a binary event to ensure that he is comfortable with the level of risk.

Exhibit 3: Portfolio geographic breakdown (%)

Sector	End-January 2021	End-January 2020	Change (pp)
North America	77.1	85.7	(8.6)
China	12.1	*N/S	N/A
Continental Europe	7.4	5.3	2.1
UK	0.6	0.8	(0.2)
Other	0.0	7.5	(7.5)
Unquoted	2.8	0.7	2.1
Total	100.0	100.0	

Source: BIOG, Edison Investment Research. Note: Adjusted for gearing. *N/S is not stated.

Exhibit 3 shows the trust's geographic breakdown. Notable changes over the 12 months to the end of January are a lower North America weighting (-8.6pp) and, on the assumption that the 'other' category in January 2020 was China, a higher (+4.6pp) weighting to the country.

Performance: Long-term record of outperformance

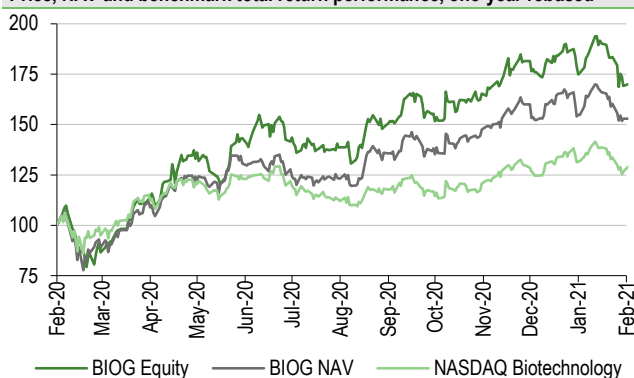
Exhibit 4: Five-year discrete performance data

12 months ending	Share price (%)	NAV (%)	NASDAQ Biotech (%)	World-DS Pharm & Bio (%)	MSCI World (%)
28/02/17	25.0	28.1	31.4	21.4	36.6
28/02/18	(2.0)	(5.2)	(0.8)	0.5	6.6
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	52.9	26.6	11.3	18.8

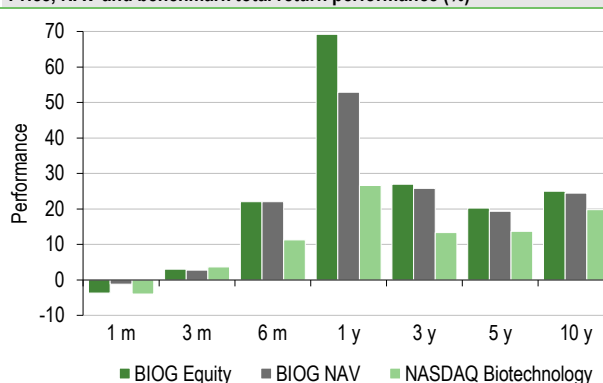
Source: Refinitiv. Note: All % on a total return basis in pounds sterling.

Exhibit 5: Investment trust performance to 28 February 2021

Price, NAV and benchmark total return performance, one-year rebased



Price, NAV and benchmark total return performance (%)



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

Hsu comments that in 2020, all segments of BIOG's portfolio did very well including emerging market stocks, which were meaningful contributors to the trust's performance. Its strategy of crossover investments whereby BIOG participates in the last round of financing prior to a company listing on the stock market and then increases its position size at the IPO has proved successful.

The manager adds that on average crossover followed by IPO investments tend to generate 3–4x the returns compared with traditional investments.

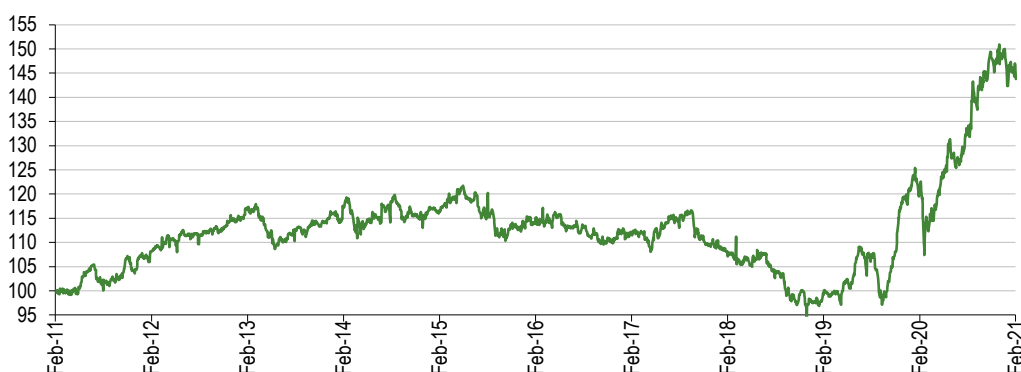
Exhibit 6: Share price and NAV total return performance, relative to indices (%)

	One month	Three months	Six months	One year	Three years	Five years	10 years
Price relative to NASDAQ Biotechnology	0.3	(0.7)	9.7	33.7	40.7	32.2	53.9
NAV relative to NASDAQ Biotechnology	3.0	(0.9)	9.7	20.8	36.8	27.4	46.6
Price relative to World-DS Pharm & Bio	1.7	6.1	23.1	52.0	52.1	52.7	145.5
NAV relative to World-DS Pharm & Bio	4.3	5.8	23.1	37.4	47.9	47.1	133.9
Price relative to MSCI World	(4.4)	1.8	13.9	42.5	50.5	26.7	209.0
NAV relative to MSCI World	(1.9)	1.5	13.9	28.8	46.3	22.0	194.3
Price relative to CBOE UK All Companies	(5.7)	(1.7)	9.0	64.6	100.4	90.2	449.0
NAV relative to CBOE UK All Companies	(3.2)	(1.9)	9.0	48.8	94.8	83.2	423.0

Source: Refinitiv, Edison Investment Research. Note: Data to end-February 2021. Geometric calculation.

BIOG's relative returns are shown in Exhibit 6. It has meaningfully outperformed the benchmark over one, three, five and 10 years in both NAV and share price terms. Recent underperformance in January 2021 was due to erratic share price moves in both the biotech sector and the broader market as a result of short squeezes orchestrated by retail investors in select stocks such as GameStop and AMC Entertainment. BIOG's total returns are ahead of the MSCI World index over all periods shown (with the exception of one month), while the outperformance compared with the broad UK market is even more notable over one, three, five and 10 years.

Exhibit 7: NAV performance versus benchmark over 10 years



Source: Refinitiv, Edison Investment Research

Peer group comparison

Exhibit 8: Biotech and healthcare investment companies, as at 8 March 2021*

% unless stated	Market cap £m	NAV TR 1 year	NAV TR 3 year	NAV TR 5 year	NAV TR 10 year	Discount (ex-par)	Ongoing charge	Perf. fee	Net gearing	Dividend yield
Biotech Growth Trust	555.6	40.5	84.4	129.4	733.0	(7.0)	1.1	Yes	104	0.0
BB Biotech	3,713.5	33.4	27.7	93.2	567.0	17.6	1.3	No	107	4.2
BB Healthcare	945.1	35.0	81.5			1.1	1.1	No	100	2.7
HBM Healthcare Investments	1,844.4	30.9	108.0	180.5	558.5	10.7	1.5	Yes	103	2.2
International Biotechnology Trust	314.2	22.0	40.6	89.9	450.3	1.1	1.3	Yes	102	3.3
Polar Capital Global Healthcare	283.8	7.8	35.1	61.7	216.8	(11.8)	1.1	Yes	103	0.9
Syncona	1,701.3	2.2	39.7	76.6		25.9	1.8	No	100	0.0
Worldwide Healthcare Trust	2,320.2	14.8	49.3	102.8	439.3	2.1	0.9	Yes	100	0.7
Average	1,459.8	23.3	58.3	104.9	494.2	5.0	1.3		102	1.7
Trust rank in sector (eight funds)	6	1	2	2	1	7	6		2	7=

Source: Morningstar, Edison Investment Research. Note: *Sterling performance to 5 March 2021 based on ex-par NAV. TR = total return. Net gearing is total assets less cash and equivalents as a percentage of net assets.

In Exhibit 8 we show the six well-established funds in the AIC Biotechnology & Healthcare sector, along with two Switzerland-listed funds (BB Biotech and HBM Healthcare Investments). BIOG has performed relatively well, ranking first over one and 10 years by a considerable margin, and second

over three and five years. On 8 March 2021, the trust was one of two funds trading at a discount. BIOG has one of the lowest ongoing charges in the selected peer group, the second highest level of gearing and is one of two funds not paying a dividend.

Dividends

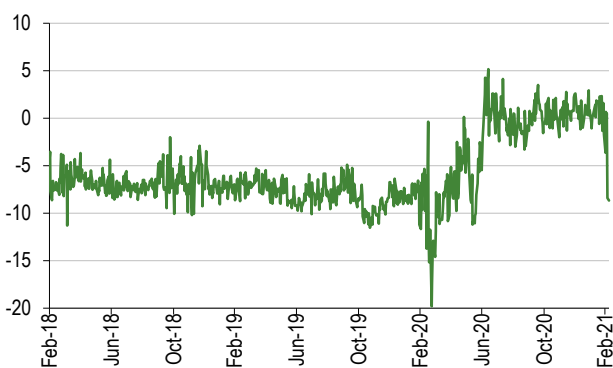
BIOG's investment objective is to generate long-term capital growth rather than income and a large proportion of the fund is invested in early-stage companies that invest for further growth rather than returning cash to shareholders. In FY20, the trust's revenue return was a modest 1.0p per share, which was in line with FY19. No dividend has been paid since 2001 (0.2p per share).

Discount: Had been regularly trading close to NAV

Having historically traded at a discount, BIOG had been regularly trading close to NAV until the recent period of profit taking in the technology and biotech sectors. Its current 8.7% share price discount to cum-income NAV compares with average discounts of 2.5%, 5.7%, 5.8% and 5.1% over the last one, three, five and 10 years respectively.

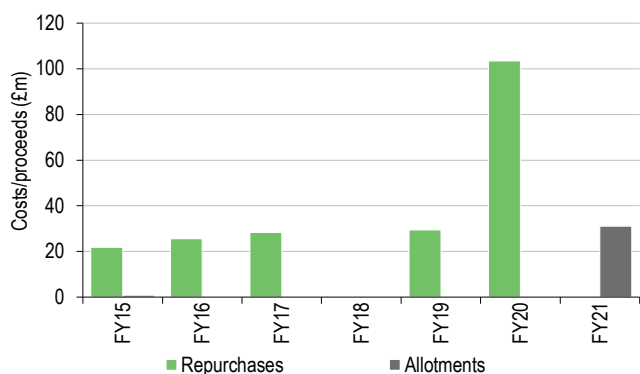
Renewed annually, BIOG has authority to purchase up to 14.99% and allot up to 10% of issued share capital. The board remains committed to limiting the discount to 6% in normal market conditions. However, buybacks were suspended in March 2020 due to extreme stock market volatility. Given the trust's generally higher valuation in recent months, so far in FY21, c 2.3m shares have been issued (5.7% of the share base) raising c £31.0m.

Exhibit 9: Discount over three years



Source: Refinitiv, Edison Investment Research

Exhibit 10: 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 more than \$16bn of assets under management (c \$5.5bn in public equities). OrbiMed operates from 11 regional offices and has a team of around 100 investment professionals, of whom 30 hold PhD or MD qualifications and 15 are former CEOs or company founders. Hsu aims to generate long-term capital growth from a diversified portfolio of global biotech equities and related securities. BIOG's performance is measured against the NASDAQ Biotechnology Index (sterling-adjusted), and its currency exposure is unhedged. The trust'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 (excluding a maximum \$15m in private equity funds managed by

OrbiMed and its affiliates); and swaps exposure is permitted up to 5% of gross assets. Hsu may employ gearing up to 20% of net assets; net gearing was 4.0% at end-January 2021.

Investment process: Bottom-up stock selection

Hsu aims to generate long-term capital growth from a globally diversified portfolio of biotech stocks across the market cap spectrum; he is able to draw on the broad resources of OrbiMed's experienced investment team. 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, the majority of the portfolio is held in US companies, reflecting its current dominance in the biotech industry, although BIOG has a notable double-digit 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 as a result of its emerging biotech exposure, where stocks can be volatile around news about clinical results. A review undertaken with the trust's board showed the investment team's research efforts can generate excess returns, which could be enhanced by monetising successful positions more quickly, rather than holding on to stocks for too long, as well as exiting underperforming stocks deemed to have further downside risk. The increased portfolio turnover has borne fruit, as has the 2020 change in the structure of the portfolio whereby the majority of the fund is held in emerging rather than major biotech stocks. Hsu will continue to invest in unquoted companies (c 3% of the fund at end-January 2021).

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 into account applicable environmental, social and corporate governance (ESG) factors when evaluating a prospective or existing investment. On a quarterly basis, the company's valuation and risk committee conducts a proactive screening of these across its holdings. Firms with potentially concerning ESG factors, as provided by third-party data services, are highlighted for discussion and potential referral to investment team members for further action if appropriate. 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 through seeking representation on their boards of directors.

The manager seeks to invest in reputable management teams and is especially cognizant about corporate governance in emerging markets, as company credentials in these regions may not be as high as those of firms in developed regions. He suggests that the biotech sector does not have the same concerns as within other industries given biotech companies are providing a social good.

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 January 2021, the trust's

net gearing was 4.0%, which is below the low end of the typical range of 5–10%. The manager explains that the level of gearing is a result of bottom-up stock selection, while it has naturally declined as BIOG's NAV has risen considerably.

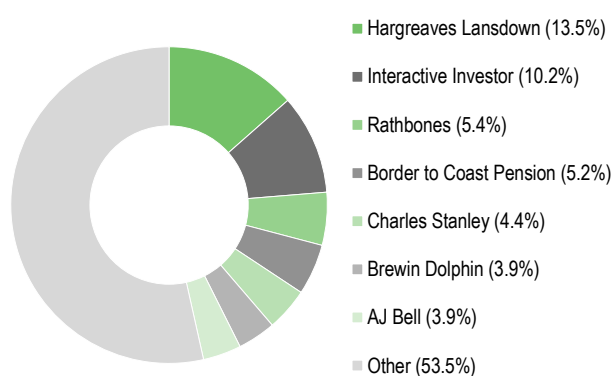
Fees and charges

OrbiMed is paid an annual management fee of 0.65% of BIOG's NAV and Frostrow Capital (the trust's alternative investment fund manager, which provides company management, secretarial, administrative and marketing services) receives an annual fee of 0.3% of the trust's market cap, plus a fixed fee of £60k pa. A performance fee is payable – 16.5% of outperformance versus the benchmark (15.0pp and 1.5pp to OrbiMed and Frostrow, respectively). It is only payable to the extent that 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. No performance fee was paid in FY20, but assuming BIOG's outperformance is maintained, the maximum amount that could become payable by 30 September 2021 is £18.5m. In H121, the trust's ongoing charges were 1.1%, which was in line with FY20.

Capital structure

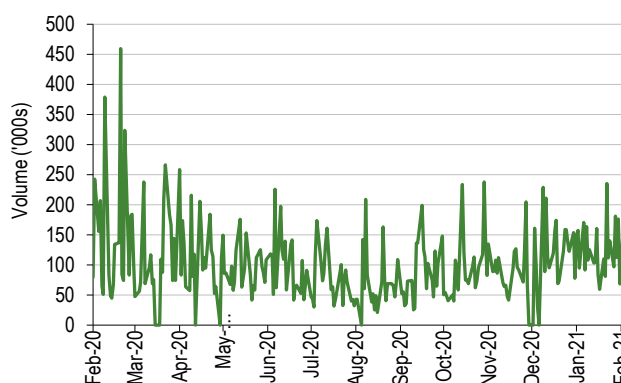
BIOG is a conventional investment trust with one class of share. There are currently 41.5m ordinary shares in issue and the average daily trading volume is 104.5k shares. The trust has a five-year continuation vote – the last was held at the July 2020 AGM when the resolution was passed by a significant majority (99.9% of votes were in favour).

Exhibit 11: Major shareholders



Source: BIOG, as at 28 February 2021

Exhibit 12: Average daily volume



Source: Refinitiv. 12 months to 28 February 2021.

The board

Exhibit 13: BIOG's board of directors

Board member	Date of appointment	Remuneration in FY20	Shareholdings at end-FY20
Andrew Joy (chairman since 2016)	2012	£37,000	55,000
Professor Dame Kay Davies	2012	£28,500	3,500
Steve Bates	2015	£28,500	10,000
Rt Hon Lord Willetts	2015	£26,000	Nil
Julia le Blan	2016	£28,500	7,000
Geoff Hsu	2018	Nil	Nil
Dr Nicola Shepherd	2021	N/A	N/A

Source: BIOG

As Hsu is a partner at OrbiMed, he is considered to be a non-independent director.

On 18 January 2021, the board announced the appointment of Dr Nicola Shepherd as an independent non-executive director with immediate effect. She is the founder and a director of Bellows Consulting, which operates in the biomedical translational sector, providing strategic advice and assisting clients in moving their projects closer to the market. Previously, Dr Shepherd held positions as a senior member of the innovations division at the Wellcome Trust; in late-stage development and manufacturing at AstraZeneca; at Global Prior Art (a US patent specialist in intellectual property); and Brown University. She is a member of the CARB-X Advisory Board and a reviewer for Innovate UK.

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