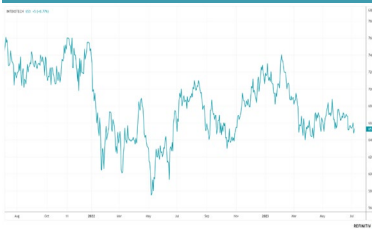




10 July 2023

Pharmaceuticals & Biotechnology



Source: Refinitiv

Market data

EPIC/TKR	IBT
Price (p)	653
12m high (p)	741
12m low (p)	619
Shares (m)	40.20
Mkt cap (£m)	262.5
NAV (£m)*	282.6
NAV/share (p)*	703
Premium/(discount) to NAV	-7%
Reporting currency	GBP
Country of listing	UK
Market	Main

*As at 07 July 2023

Description

International Biotechnology Trust (IBT) is a well-established investment trust with the key objective of achieving long-term capital growth by investing in a global portfolio of biotechnology and life sciences companies that address unmet medical needs.

Company information

Lead manager Ailsa Craig
 Lead manager Marek Poszepczynski
 Manager (UQ) SV Health Investors
 Investor relations Lucy Costa Duarte
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Corporate calendar

January	1H dividend
May	Interim results
August	2H dividend
November	Final results
December	AGM

Analyst

Martin Hall +44 (0)20 3693 7075
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INTL. BIOTECHNOLOGY TRUST

Industry M&A remains a key driver

IBT was established in 1994 to provide institutional and retail investors with the opportunity to participate in global biotechnology and life science companies, from venture-stage early drug discovery via venture capital funds (SV Health Investors) through to global, multinational biotechnology companies. The trust's main aim is to generate capital growth, while minimising risk, through a diversified portfolio and an experienced investment team. Over the past five years, IBT's NAV per share has increased 37%, while the share price has risen 36% in the same period – differentiated returns are generally due to changes in the share price discount.

- **Strategy:** IBT's investment objective is to achieve long-term capital growth by investing in biotechnology companies that address unmet medical needs. The trust offers a diversified portfolio of listed and private companies on a global basis, although the vast majority (87%) of investments are currently in the US.
- **NAV updates:** With ca.90% of the investment portfolio in listed companies, the NAV changes on a daily basis, which is updated on the LSE website. IBT also produces monthly factsheets, which highlight portfolio changes and update the NAV (<https://ibtplc.com/investor#factsheets>). The managers also publish an informative topical blog each month (<https://ibtplc.com/investor#investment-blog>).
- **Portfolio management:** The managers are bottom-up stock-pickers with a top-down asset allocation overlay to respond to anticipated market movements. 18 months ago, valuations looked expensive, so holdings of safer mega-cap companies were increased, while exposure to smaller companies was reduced. These positions have been reversed now that valuations are more reasonable, as smaller companies offer superior growth, exciting innovation and increased potential for M&A.
- **Risks:** Risk is minimised through portfolio diversification, geographical spread and active specialist investment management. Also, many valuation inflection points in the drug industry are around the time of binary outcomes (e.g. clinical trial results) – so the trust aims to reduce exposure to such events that it considers binary. IBT's volatility is lower than that of its benchmark index and its peers.
- **Investment summary:** IBT provides investors with the opportunity to participate in the drug industry, from early-stage drug discovery through to full commercialisation of regulatory-approved drugs. The focus is on companies that address unmet medical needs. The five-year CAGR in NAV has been 6.5%, reflected in the share price CAGR of 6.3% over the same period, and the trust pays an annual dividend of 4% of NAV at the preceding financial year-end.

Financial summary and valuation

Year-end Aug (£m)	2018	2019	2020	2021	2022	*2023E
Gains/(losses) on investments	21.59	-13.94	54.13	30.93	-14.70	-2.34
Effect of forex	1.05	-0.52	1.77	0.07	-4.38	0.00
Total expenses**	-2.79	-3.44	-3.17	-3.83	-3.70	-2.75
Expenses as % NAV	1.1%	1.4%	1.2%	1.3%	1.2%	1.0%
Operating profit/(loss)	20.23	-17.23	53.85	28.27	-21.66	-4.08
NAV	262.5	239.6	283.9	323.8	284.9	282.6
NAV/share (p)	699.0	623.9	738.6	782.4	697.2	702.8
DPS (p)	27.0	28.0	24.8	28.4	31.4	28.4
Yield	4.1%	4.3%	3.8%	4.3%	4.8%	4.3%

*Based on share prices and forex at close of business on 07 July 2023

**Including performance fee and excluding fees within unquoted funds

Source: Hardman & Co Life Sciences Research

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Why invest?

Exposure to complete spectrum of pharmaceutical development

Portfolio diversification

IBT gives investors exposure to the complete spectrum of pharmaceutical development, from venture capital (VC) into very early-stage companies, via its investments in SV venture funds (SV Fund VI and SV Biotech Crossover Opportunities Fund (SV BCOF)), through to multi-billion-dollar market capitalisation biotechnology companies. As such, its investment portfolio provides diversity of maturity of a company, therapeutic focus and geographical location.

Well-positioned to deliver key objective of long-term capital growth

Experienced management team

The current fund managers of the quoted portfolio have considerable sector experience, and possess specific strengths with respect to company analysis and biotechnology market knowledge. They are backed up by a strong panel of retained Key Opinion Leaders (KOLs) from the biotech industry with expertise in clinical trial design, statistical analysis and regulatory affairs. This is particularly important in a sector that is characterised by complex, fast-changing technical innovation. The team's expertise positions IBT well to deliver the key objective of achieving long-term capital growth.

SV Health announced its withdrawal from managing IBT in February

The fund managers are FTEs of SV Health Investors LLP (SV Health), which has been responsible for managing the trust since its appointment in November 2000. In February 2023, SV Health announced, unexpectedly, that it was refocusing on its core venture business. Consequently, the board of directors of IBT has conducted a process to find a new AIFM for the trust. In its interim report, the board disclosed that it had received numerous expressions of interest in managing the company's assets. Together with its advisors, it had drawn up a shortlist of six fund management houses and expects to make an announcement in the near future to minimise the period of uncertainty. The trust's current lead fund managers, Ailsa Craig and Marek Poszepczynski, have expressed their wish to continue as fund managers for the trust.

Board has identified a shortlist of six fund management groups

Risk mitigation

Lower volatility compared with benchmark index

Apart from portfolio diversification, the managers have adopted a specific strategy of reducing overweight positions in companies around the time of a binary outcome, such as an important clinical trial outcome, or a regulatory approval decision on a new drug. IBT has lower volatility compared with its benchmark index, which may be helped by the managers' actions heading into binary events. This is a key differentiator from its peers. Hardman & Co views this as a very sensible strategy, because history tells us that there are more failures than wins in the evolution of new drug development. It suggests that, on balance, exposure is much reduced when something goes wrong, although upside potential is also missed when things go well. In the event of a positive outcome, the managers can buy back the stock after the news is released and, although the price may have risen, on a risk-weighted basis, the now de-risked asset could be considered cheaper.

The industry is notoriously unpredictable, as has been observed over the past two years, when the FDA approved, unexpectedly, Biogen's new drug for dementia, even though the clinical evidence of efficacy was weak. Conversely, at the beginning of 2022, industry commentators had expected a regular flow of FDA approvals. However, in 2022, a total of 37 approvals were made, which was well down (18%) on the average number (51.2) of approvals over the past five years.

Greater growth opportunities from moving portfolio more towards small-to mid-cap companies

Active portfolio management







Although the trust managers are naturally long-term holders, as part of the risk mitigation process surrounding binary outcomes, there will be active portfolio management. However, it should be noted that the managers have reduced the churn rate from over 200% a few years ago to ca.100% in each of the past five years. This reflects the portfolio management taken by the fund managers when biotech valuations became more attractive. In 2022, increased portfolio management during more volatile markets resulted in an increase in the churn rate to 136%. Also, investors should be aware that the churn rate automatically increases when cash received from M&A activity is reinvested in the market. This is likely to affect fiscal 2023 given that there have been two large M&A transactions within portfolio companies.

Very long track record

Performance

Given that IBT was established in 1994, it has a very long track record. Its current lead fund managers have been involved with managing the trust for 14 years and 10 years respectively and took over as joint lead investment managers in March 2021. Performance figures are updated regularly, and can be monitored easily, and, over the past five years, IBT's NAV per share has increased 37%, while its share price has risen 36% over the same period.

Why invest? – Overview

 <p>Innovation Invested in some of the most innovative healthcare companies in the world</p>	 <p>Cycle Biotech sector appears to be entering more stable part of its investment cycle</p>	 <p>Performance IBT's NAV* outperformed the NBI index** on 1yr, 3yr and 5yr basis to end Feb 23*</p>
 <p>Yield 4% of NAV* paid out as a dividend each year in two instalments</p>	 <p>Expertise Managed by a team of biotech experts with access to industry specialist key opinion leaders</p>	 <p>Supportive Board Proactive board manages the trust's discount to NAV*** in conjunction with the broker</p>

Source: IBT annual report

IBT is committed to the principles of ESG compliance

ESG principles

There is recognition within IBT of the importance of environmental, social and governance (ESG) issues, and the board adopted a new ESG policy in October 2021. The board encourages managers to consider the ESG approach taken by investee companies. Given that the aim of biotech companies is to address the unmet medical needs of patients, there is a natural bias to bring about positive social change. Consequently, there is a natural leaning of the biotech industry to ESG principles.

IBT monitors the ESG adherence of the top 10 stocks in its quoted portfolio and the unquoted biotech portfolio, will engage with companies that fall short in any areas, and reports to its shareholders on the outcomes. IBT aims to be a leader in the industry, and its biotech investment strategy won a 2022 Responsible Investing Award from Capital Finance International.

Supportive board of directors






Corporate governance has been enhanced recently with the appointments of Professor Patrick Maxwell (Head of the School of Clinical Medicine at the University of Cambridge) and Gillian Elcock (former equity research analyst at Putnam and Insight) to the board of directors.

The board has supported the trust proactively, buying back shares to be held in treasury when it deems that the discount to NAV has widened significantly, providing a suitable opportunity.

By way of example, the board has recently been buying back shares in the market, bringing its current treasury holding to 1,179,258. In contrast, when the share price has had periods of a sustained premium to the NAV (for example, back in 2021), the board has managed the premium by reissuing shares from treasury.

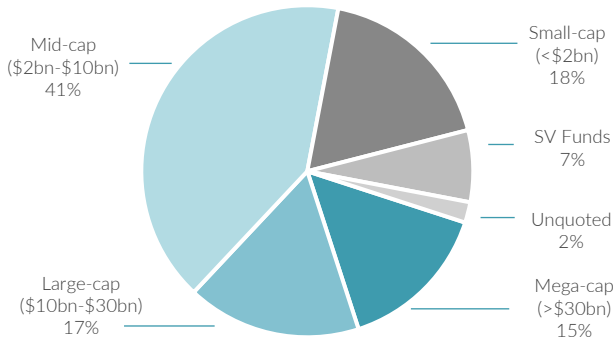
External recognition and awards

Recent performance awards

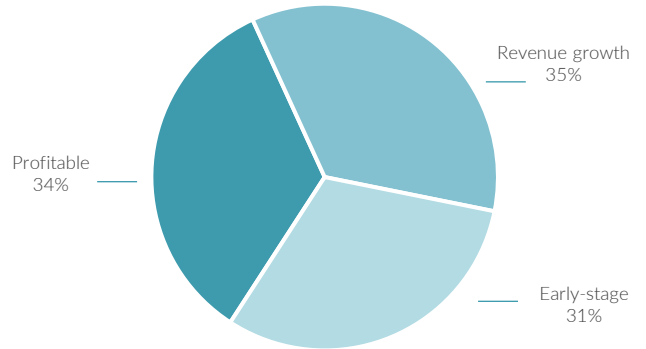
				
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Source: IBT reports

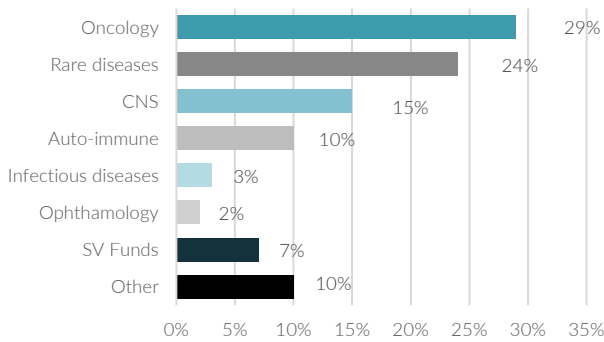
% NAV by size (@31 May 2023)



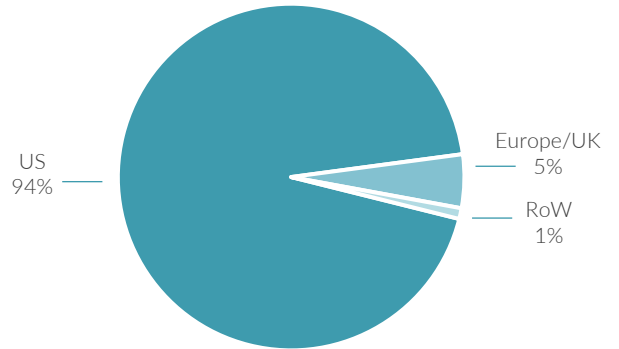
% NAV by development stage (@31 May 2023)



% NAV by therapeutic area (@31 May 2023)



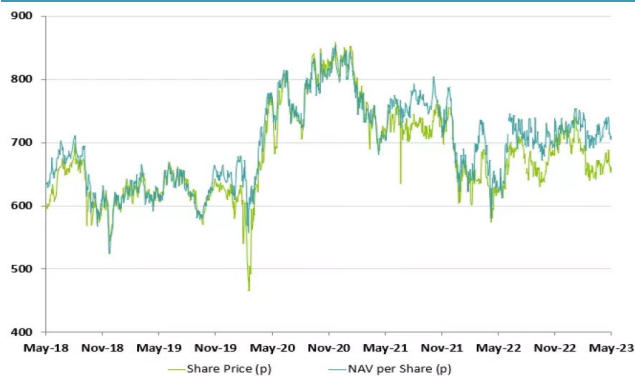
% NAV by geography (@31 May 2023)



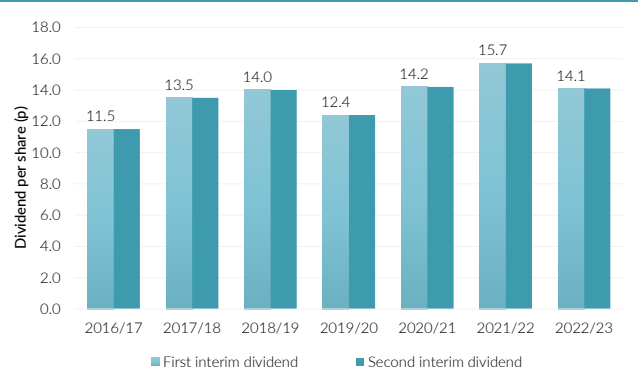
Comparison of top 10 holdings at 31 May 2023 with 2022 fiscal year-end

May '23	Aug '22	Company	Ticker	Size	Therapeutic focus	Stage	2022 sales (\$m)	2022 global rank	% NAV
1	27	Amgen	AMGN	>\$30bn	Oncology	Profitable	24,801	15	7.3%
2	3	Incyte	INCY	>\$10bn<\$30bn	Oncology	Profitable	2,747	36	6.2%
3	7	Harmony Bio	HRMY	>\$2bn<\$10bn	Rare diseases	Revenue generating	438	-	5.5%
4	16	Alnylam	ALNY	>\$10bn<\$30bn	Rare diseases	Revenue generating	894	-	4.3%
5	9	Supernus	SUPN	<\$2bn	CNS	Profitable	649	-	4.0%
6	-	Apellis	APLS	>\$10bn<\$30bn	Rare diseases	Revenue generating	65	-	3.1%
7	5	Gilead	GILD	>\$30bn	Infectious diseases	Profitable	26,982	13	3.1%
8	32	United Ther.	UTHR	>\$10bn<\$30bn	Rare diseases	Profitable	1,936	40	3.1%
9	11	Intra-Cellular	ITCI	>\$2bn<\$10bn	CNS	Revenue generating	249	-	3.0%
10	10	Exelixis	EXEL	<\$10bn	Oncology	Profitable	1,401	47	2.9%

NAV and share price



Dividends



Source: Company data, Hardman & Co Life Sciences Research

Latest results – 2023 interims

Key features

Active portfolio management

- ▶ Of the top 10 holdings on 31 August 2022, six remained major holdings on 28 February 2023. More active portfolio management than usual during 1H'23 has been necessitated by M&A activity, with funds generated during the period being deployed elsewhere, particularly into small- to mid-cap companies with better growth opportunities.
- ▶ During 1H'23, IBT has benefited from M&A activity, with three quoted companies being the subject of takeover bids – Horizon Therapeutics (HZNP), Albireo (ALBO) and Concert (CNCE), which have been, or are being, acquired by Amgen, Ipsen and Sun, respectively. Over the past few years, IBT has a good track record of being invested in biotech companies that attract takeover approaches from the major players seeking de-risked products/technologies.
- ▶ In December 2022, Amgen announced its intention to acquire HZNP for \$28bn, which represented a 48% premium to the market valuation. HZNP was IBT's largest position in the quoted portfolio, representing 13.5%. Prudently, the fund managers have been selling shares in the market and by the period end, HZNP was the 38th-largest holding, and represented only 0.8% of NAV.

Active portfolio management			
#	@31 August 2022	@28 February 2023	Current (@30 April 2023)
1	Horizon Ther.	Seagen	Seagen
2	Seagen	Amgen	Amgen
3	Incyte	Harmony Bio	Incyte
4	Regeneron	Supernus	Harmony Bio
5	Gilead Sciences	Alkermes	Alkermes
6	Neurocrine Bio	Uniqure	Intra-Cellular
7	Harmony Bio	Incyte	Supernus
8	Mirati	Intra-Cellular	Ultragenyx
9	Supernus	Mirati	Vertex
10	Exelixis	Exelixis	Apellis
% NAV	45.8%	47.4%	50.9%

Source: IBT factsheets and annual reports

Financial performance

The six-monthly financial performance is shown in the following table, although this has already been superseded by release of the April 2023 factsheet.

Financial performance – income statement*			
Half-year to (£000)	Feb'22 (1H'22)	Aug'22 (2H'22)	Feb'23 (1H'23)
Gains/losses on investments	-46.45	-14.70	18.29
Effect of forex	-0.61	-4.38	0.56
Other income	0.65	1.11	0.45
Total income	-46.41	-17.96	-19.31
Management fee	-1.19	-2.01	-0.87
Performance fee	0.00	-0.47	-0.20
Administration expenses	-0.58	-1.22	-0.66
Total expenses	-1.86	-3.70	-1.73
EBIT	-48.28	-21.66	17.57
Finance costs	-0.26	-0.66	-0.56
Profit before tax	-48.54	-22.32	17.01
EPS (p)	-117.95	-54.72	41.57
NAV/share (p)	648.8	697.2	724.88

*Numbers may not add up exactly due to rounding

Source: IBT reports, Hardman & Co Life Sciences Research

Investment strategy

Current direct portfolio of 74 companies, plus 24 via SV Funds...

...encompasses broad spectrum of drug development and commercialisation

Revaluation of biotech in 2022 and M&A activity necessitated greater portfolio management

Exposure minimised around time of binary outcomes

IBT's investment portfolio is currently (April 2023 factsheet) comprised of 74 listed companies, plus holdings in two funds managed by SV, through which IBT has exposure to a further 24 companies – 20 unquoted companies and four quoted. This provides a diversified portfolio, covering everything from early-stage drug discovery and development through to full commercialisation of regulatory-approved drugs. The consistent theme within the portfolio is that all the companies attempt to address unmet medical needs, which gives them greater pricing flexibility, with the main objective of generating long-term capital growth, as well as being consistent with ESG principles.

The portfolio is actively managed, and has seen a churn rate of approximately 100% in each of the past three years; although revaluation of biotech in 2022 was the catalyst for an increase in the churn rate to 136%, even though the managers are generally taking long-term views. A key differentiator of IBT is that it tries to minimise exposure to stocks around the time of binary outcomes (e.g. announcement of clinical trial results), which can cause large volatility in share prices, in both an upward and a downward direction. This reduces the risk to investors, but could also increase the churn rate. M&A activity also adds to the rate of churn.

Investment process

The experienced investment team follows a rigorous investment process; this is shown in the following graphic. Key is the idea generation, which could come from a number of internal and external sources. Company news flow is closely monitored, and valuation is constantly assessed to determine a suitable in-price and when to take profits. The managers are disciplined in their approach to trading, even trading out of a high-conviction stock if the valuation seems unjustified. Risk mitigation is an important component of the process, whereby the investors employ diversification and trading strategies to try to avoid losing investors' money. Also, the trust's gearing position is actively managed in response to market forces.



Source: IBT presentation

Stock selection

A bottom-up and a top-down approach are used for stock selection.

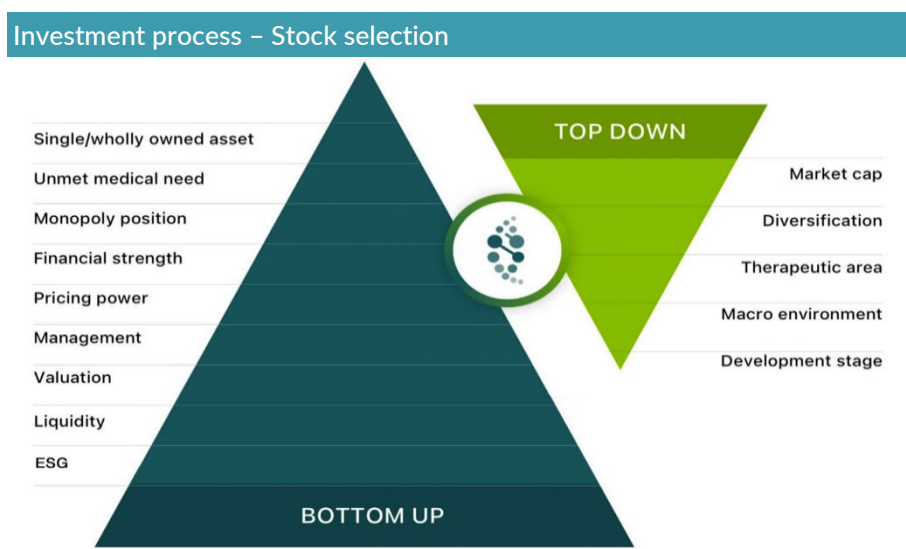
Bottom-up

By their very nature, assets need to have a strong intellectual property (IP) position and, ideally, be wholly owned by the company. Given the competitive nature of the healthcare industry, it is preferable for the asset to address an unmet medical need,

thereby presenting, potentially, a monopoly position. Alternatively, if there are already drugs on the market addressing a particular need, the asset needs to be a “disrupter”, with the potential to alter the market dynamics – e.g. an oral therapy where all existing drugs are given by injection.

Apart from strong IP and financial prospects, management teams are very important

Management teams are also very important. The IBT managers proactively meet the management of portfolio companies and other companies in the sector regularly, arranging around 250 such meetings per year, mostly by videoconference, but also by attending conferences. Financial position is particularly important in the development-stage portfolio companies, especially in today’s inflationary environment, and is, therefore, an area of close attention for the IBT managers. The managers’ risk mitigation strategy requires them to be able to trade in and out of their positions nimbly – so stock liquidity is also an important consideration.



Source: IBT presentation

Top-down

Apart from the size of a company (mega-cap companies struggle to grow and tend to have very diversified medical targets), the team also takes a keen interest in the macroeconomic environment that might affect the sector’s performance. The managers seek to ensure an appropriate balance across the three areas of size, development stage and therapeutic area. The top-down overlay enables the managers to tilt the portfolio into more stable mega-cap companies when a period of volatility is expected, and, conversely, to tilt it towards smaller companies when a recovery is deemed to be imminent.

Sector drivers

Given the long development times, biotech has to take a long-term view. Consequently, the key sector drivers do not change materially.

Strong fundamentals

- ▶ **Demographics:** We are seeing ageing populations globally, together with rising per capita income, changing lifestyles and dietary preferences, and improved access to healthcare.
- ▶ **Unmet medical needs:** A number of diseases are currently untreatable, or are poorly treated by current therapy options. Treatment of chronic diseases, such as diabetes, respiratory and mental health conditions, will continue to witness increasing demand globally.

- ▶ **Innovation:** New and innovative products that aim to satisfy unmet medical needs continue to be developed and launched, particularly in pharmaceutical markets in developed countries. There is also the emergence of gene and cell therapies for personalised medicine.
- ▶ **Access/demand:** Global demand through increased access to healthcare, coupled with an expansion in national healthcare budgets, per capita income and insurance coverage, particularly in developing countries and emerging drug markets, will continue to drive overall growth in pharmaceutical consumption.
- ▶ **Regulation:** Over the next five years, 50-60 new drug approvals are expected each year. Other factors that could affect regulatory strategy include the recent appointment of a new FDA commissioner – Dr Robert Califf.

Macroeconomics

- ▶ **Economic growth:** The sector is relatively resilient, but not immune, to economic cycles, as drug sales are largely unaffected by economic factors.
- ▶ **Payors/drug pricing:** There is a fine balance between generating a sensible return on R&D investment and affordability. Payors want to see strong pharmaco-economic evidence that drug pricing is supported by improved patient outcomes. As an example of government intervention, the Chinese recently slashed the national reimbursement list price for oncology drugs.
- ▶ **Inflation:** Global inflation is currently running well above the level that economists and political commentators were forecasting only 12 months ago. In our opinion, it is likely to remain relatively high and for longer than is currently being forecast. Demand for drugs and, therefore, sales are not materially affected by inflation, as healthcare is usually considered a financial priority by consumers.
- ▶ **Capital:** Development of drugs is capital-intensive. The interlink between inflation and interest rates could lead to a financing crunch, which may affect smaller companies at the stage of drug discovery and development with less robust financial profiles.
- ▶ **Global politics:** While there is undoubtedly recognition of the rising demand for pharmaceuticals, questions remain about how, ultimately, governments will be able to afford this increased burden.

Drug development

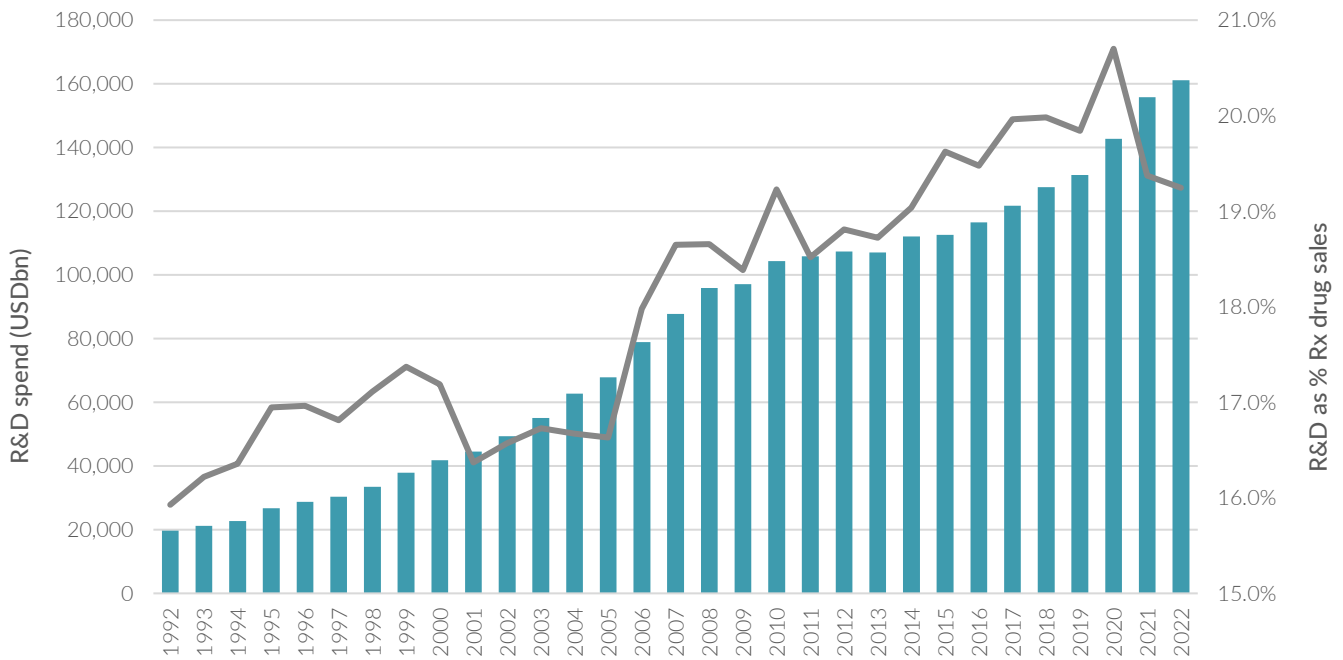
CAGR in R&D spend by top 15 companies has been 4.9% over past decade

In 2022, total R&D spend by the top 40 pharmaceutical and biotechnology companies was \$161.4bn, an increase of 3.6% on a reported basis – lowered by forex on translation into USD – compared with 2021. There is probably an unquantifiable additional 15%-20% (guesstimate only) being invested by small companies, the biotech industry and research laboratories.

In 2022, the top 20 companies reinvested 19.7% of Rx drug sales back into new drug development, compared with 19.8% in 2021. For the entire universe analysed by Hardman & Co, the R&D spend was 19.2% of sales. Spend by the smaller players tends to be more focused on specific disease areas with high unmet medical need.

Although investment by the major players remains strong – the average R&D spend of the top 20 companies was \$6.92bn in 2022 (\$6.71bn in 2021) – there remain questions over whether they are getting value for money, as evidenced by the low number of regulatory approvals that they receive each year. While the drug approval process at the FDA has become more efficient, it is largely dictated by the number of submissions being filed.

Pharmaceutical R&D investment, 1992-2022

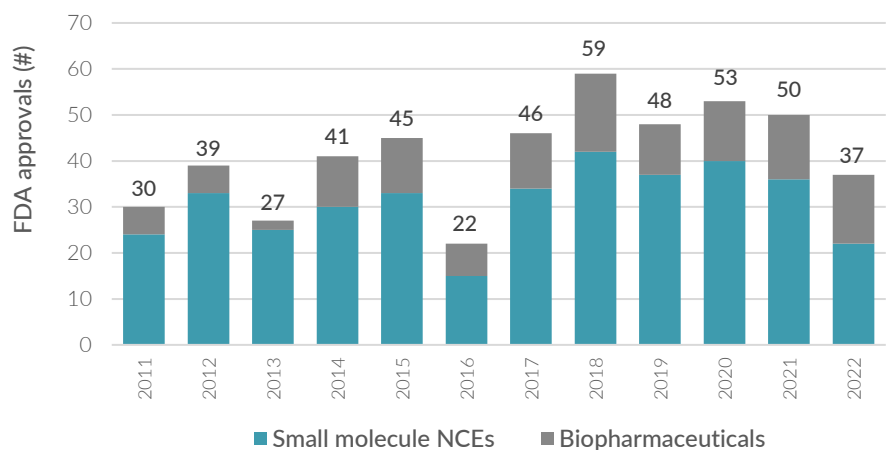


Source: Hardman & Co Life Sciences Research

Over the past 10 years, there have been 428 new chemical entities (NCEs) approved, of which 114 (26.6%) were therapeutic biologicals (biopharmaceuticals). However, in 2022, the overall approval performance was weak, with only 37 new drugs being approved. Part of the reasoning behind this was the inability of the FDA to carry out overseas manufacturing site inspections. Although this issue is likely to dissipate over time, there is uncertainty over the rate of recovery. Also, the FDA is taking a tougher stance on “accelerated approvals” – for example:

- ▶ companies must have a confirmatory trial under way as a condition for approval; and
- ▶ the requirement for patient diversity in the clinical trials – e.g. “all-China” data is not acceptable.

Sector drivers – FDA approvals



Source: FDA, Washington Analysis Group, Hardman & Co Life Sciences Research

The approval rate in 2022 equates to an average of just 0.90 (down from 1.08 in 2021) new drug approvals for each of the 41 companies monitored within our pharma database – which is insufficient to generate the expected level of sales growth. This statistic looks even worse when data for the major pharma is viewed in isolation. In 2022, only 14 (38%) of the 37 drug approvals were attributable to the drug majors. Consequently, big pharma needs the expertise and greater efficiency of biotech to provide the sales impetus from new drugs, which would be positive for M&A activity.

FDA drug approvals for the drug majors, 2022			
Company	NCE	Biologics	Total
Bristol-Myers Squibb	2	1	3
Roche	2	0	2
Sanofi	2	0	2
AstraZeneca	0	1	1
Boehringer Ingelheim	0	1	1
Gilead	1	0	1
Johnson & Johnson	0	1	1
Lilly	1	0	1
Novartis	1	0	1
Pfizer	1	0	1
Total	10	4	14
% total approvals	45%	7%	38%

Source: IBT factsheets and annual reports

M&A activity key driver of sector performance

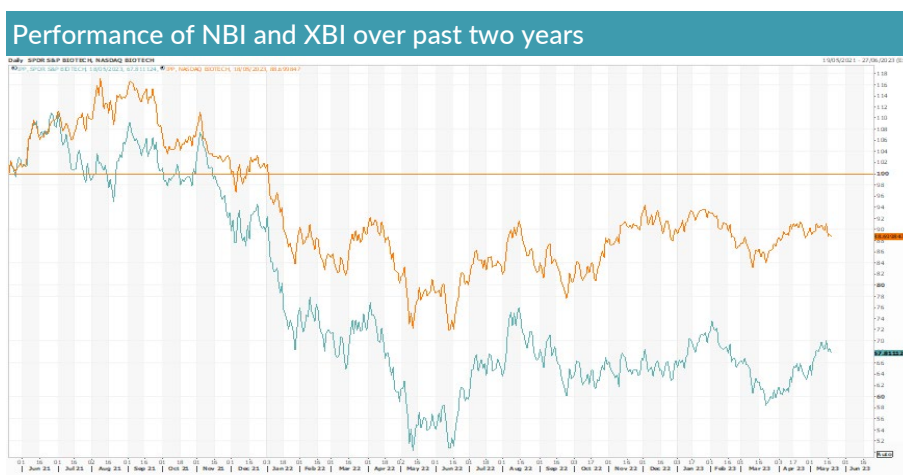
M&A activity

As concluded from the table above, the major pharmaceutical players need the small players with the new technologies to help them generate sales and profit growth. Consequently, M&A activity remains a key driver of performance within the biotechnology sector, and the features that make a biotech company attractive to a potential acquirer are also attractive to the IBT investment managers (see page 15).

Listed investments

Revaluation of biotech

IBT uses the Nasdaq Biotechnology Index (NBI) as its benchmark index. In fiscal 2021, the performance of the NBI was strong, affected significantly by companies involved closely in COVID-19-related vaccines and treatments. Performance of the NBI (market-cap-weighted and dominated by large caps) and the broader-based S&P Biotech ETF (XBI) – equal weighted and dominated by small caps – over the past two years can be seen in the following chart.



Source: Refinitiv

The NBI peaked at 5,476.6 on 9 August 2021. At this point, valuations were considered particularly high, as evidenced by a relatively low level of M&A activity, and investors began to have concerns about the longevity of COVID-19-related benefits. This coincided with investors becoming more risk-averse, due to the general global economic outlook. The NBI reached a 2022 nadir on 13 June, when it closed at 3,368.1, a fall of 38.5% from its August peak.

1H'23 has seen the fund managers remaining alert to refocusing the listed portfolio when necessitated by market events, moving more towards the larger, profitable, mega-cap (>\$30bn) companies, which are considered to be more stable in volatile markets. Conversely, when valuations appear more reasonable, the fund managers have increased exposure towards companies with higher growth prospects and innovative companies with higher M&A prospects. These changes can be seen in the statistics provided in the monthly factsheets¹.

Recovery in biotech valuations have continued in 1H'23...

...with IBT outperforming its benchmark

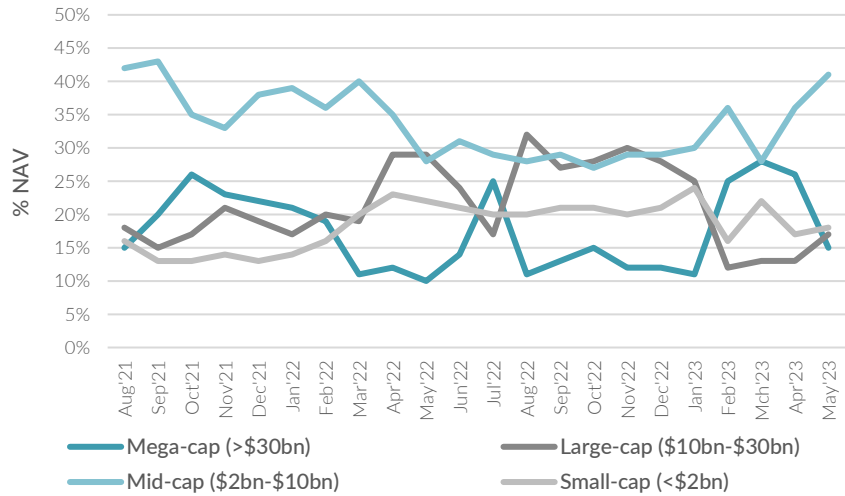
Care must be taken when comparing the performance of IBT with its benchmark index, because IBT is mostly invested in US stocks and the NBI is a US index. However, the NAV and NAV/share for IBT are quoted in GBP, so currency must be taken into consideration. On a currency-adjusted basis, IBT outperformed the NBI in 1H'23.

IBT performance versus biotech benchmarks			
Date	NBI	XBI	IBT NAV/share
Currency	GBP	GBP	GBPp
31 August 2022	3,321.9	72.0	697.1
28 February 2023	3,367.9	68.5	725.1
Change in 1H'23	+1.4%	-4.9%	+4.0%

Source: Refinitiv

¹ <https://ibtplc.com/investor#factsheets>

Monthly trends within the quoted portfolio

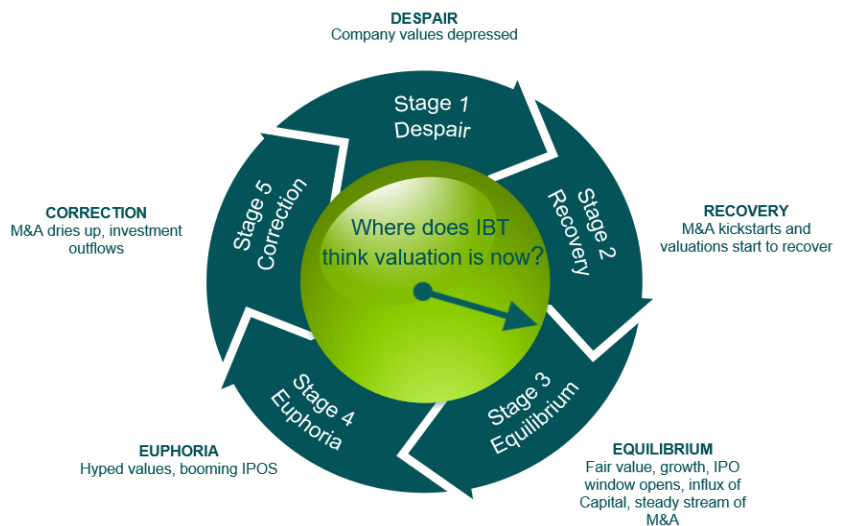


Source: IBT Monthly Factsheets

The biotech life cycle

The investment team at IBT believes that there is a cyclical environment for investing in biotech. Broadly speaking, events in 2021 indicate that Stage 5 in the investment life cycle was reached during the summer months, with exaggerated valuations. Devaluation of the sector returned valuations of companies to Stage 1 by June 2022, and recent announcements of M&A deals suggest that the biotech sector is currently considered to be around end-Stage 2/beginning-Stage 3.

Stages in the biotech life cycle



Source: IBT

- ▶ **Stage 1 – Despair:** Characterised by depressed valuations, which generally do not reflect the potential of companies.
- ▶ **Stage 2 – Recovery:** Start of the recovery phase, with the low valuations drawing back the “cash-rich” pharma companies looking to replenish their product portfolios with reasonably valued assets.

- ▶ **Stage 3 – Equilibrium:** Usually a longer phase of relative stability, growth and stable valuations, with regular M&A deal flow and a steady flow of reasonably valued IPOs.
- ▶ **Stage 4 – Euphoria:** Boom period, with prices driven up by the volume of new investors coming into the sector, and valuations starting to feel disconnected from the potential of the underlying assets. Increase in highly valued and early-stage IPOs.
- ▶ **Stage 5 – Correction:** Expectations over-inflated, causing pharma companies to use licensing deals, rather than pay hyped valuations for assets. Many early-stage companies are suddenly considered more risky, financing becomes troublesome and, at the same time, investors take profits – with inevitable price corrections. Disappointed and “late-to-the-party” investors leave the sector, and the drought cycle resumes.

Door reopens to M&A activity

33 deals in 2022

The significant devaluation of biotech companies over the past 12-18 months, together with the reinstatement of face-to-face meetings, has reopened the door to industry M&A activity. In 2022, 33 deals were announced, with a total consideration of \$83.7bn. Readers should note that these figures do not include a number of deals for small, private companies, where information was not in the public domain.

Resurgence in M&A activity...

...with 33 deals for total consideration of \$83.7bn...

Biotech M&A in 2022 – Deals >\$1bn			
Announcement	Target	Acquiror	Consideration
19 January	Zogenix	UCB	\$1.9bn
13 April	Sierra Oncology	GSK	\$1.9bn
13 April	Antares	Halozyme	\$1.0bn
9 May	Biohaven	Pfizer	\$11.6bn
3 June	Turning Point Ther.	Bristol-Myers Squibb	\$4.1bn
4 August	ChemoCentryx	Amgen	\$3.7bn
8 August	Global Blood Ther.	Pfizer	\$5.4bn
1 September	Forma Ther.	Novo Nordisk	\$1.1bn
24 October	Myovant Sciences	Sumitovant	\$1.7bn
1 November	Abiomed	Johnson & Johnson	\$16.6bn
21 November	Imago BioSciences	Merck & Co	\$1.35bn
12 December	Horizon Ther.	Amgen	\$27.8bn
33 deals			\$83.7bn

Source: Hardman & Co Life Sciences Research

...auguring well for innovative companies

While it is usual to see the acquiror paying a substantial premium to acquire its target, what has been noticeable in some of these recent transactions has been the market premium still valuing the target lower than the peak valuations seen during 2021. This new M&A paradigm suggests two things: first, big pharma clearly felt that valuations had become excessive during 2021, and held back from overpaying for acquisitions; and secondly, there appears to have been a change in the mindset of the target management team about what constitutes “fair value” for the company, given the dramatic declines in some share prices. This augurs well for innovative companies, particularly those with products close to the market or recently launched, where the development costs have been largely incurred.

Reasons for continuing M&A activity

- ▶ Major pharma companies have strong balance sheets, with many having built up large cash piles during the pandemic.
- ▶ Revaluation of biotechs has made processes more reasonable, and forced target management teams to reconsider fair value.
- ▶ The advent of drugs with mega sales (>10bn p.a.) has increased exposure to patent expiry towards the end of the decade.

- ▶ Internal R&D is not generating a sufficient number of new drugs to sustain growth and overcome the sales declines expected from pending patent expiries, as evidenced by the low level of FDA approvals in 2022, particularly for the majors.

2023 has started very strongly

20 deals in 2023 worth ca.\$78.0bn

To date in 2023, there have been 20 significant deals announced in the sector, with a total value of just under \$78.0bn. 12 of these were each valued above \$1.0bn, as listed in the table below. By far the most significant deal is the proposed acquisition of Seagen by Pfizer, for \$43bn.

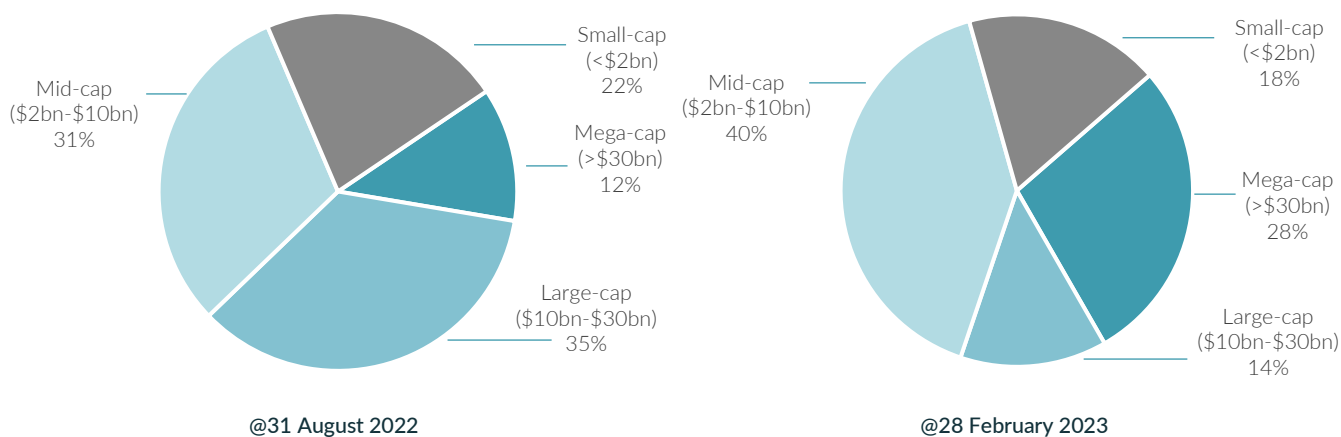
Biotech M&A announced in 2023 – Deals >\$1bn			
Announcement	Target	Acquiror	Consideration
9 January	Amryt	Chiesi Farma	\$1.3bn
9 January	Albireo	Ipsen	\$1.0bn
9 January	CinCor	AstraZeneca	\$1.3bn
13 March	Seagen	Pfizer	\$43.0bn
13 March	Provention Bio	Sanofi	\$2.9bn
17 April	Prometheus Bio	Merck & Co	\$10.8bn
17 April	Bellus Health	GSK	\$2.0bn
30 April	Iveric Bio	Astellas	\$5.9bn
10 May	CTI BioPharma	Swedish Orphan Biovitrum	\$1.7bn
22 May	VectivBio	Ironwood	\$1.0bn
12 June	Chinook Therapeutics	Novartis	\$3.2bn
20 June	DICE Therapeutics	Eli Lilly	\$2.4bn
20 deals			\$77.9bn

Source: Hardman & Co Life Sciences Research

How has IBT been responding?

The change in emphasis in IBT's portfolio over the past 18-24 months seems to mirror our own views. When biotech valuations appeared stretched, IBT shifted its portfolio to give it significant exposure to stable-growth mega-cap companies with strong cashflows. Recent trading activity has returned the focus more towards revenue-generating mid-cap companies, with R&D costs already incurred, which could also be attractive to a predator, and to investing in innovative technologies that were previously considered overpriced.

Change in quoted portfolio composition – February 2023 versus August 2022



Source: IBT factsheets

Five more M&A deals since 1 September 2022

Since January 2020, IBT has been invested in 16 listed companies (plus a further four unlisted companies in the SV managed funds) that have been acquired. This activity greatly boosts the performance of the trust, with an average takeover price at a significant premium to the previous close before the deal was announced. M&A activity is considered most likely with companies in the small to medium categories.

Investments subject to M&A activity since January 2020



* In the cases of Sanofi/ Principia & Merck/Acceleron, the market price rose sharply before the announcement. ** M&A premium not disclosed in unquoted portfolio. *** To be confirmed

Source: IBT

As previously mentioned, in December 2022, Amgen announced an agreed deal to acquire Horizon. At the time of the bid, Horizon was IBT's biggest holding in the portfolio. Prudently, the fund managers have taken the opportunity to sell down its holding to just 0.8% of NAV by the end of February 2023. This has been well justified, in light of the news (16 May 2023) that the Federal Trade Commission (FTC) is challenging this deal, which caused a large correction in the Horizon share price.

Subsequent events

Pfizer agrees to acquire Seagen

Further success with Pfizer bidding \$43bn for Seagen

Post the period-end, IBT has also benefited from further M&A activity in the sector. On 13 March 2023, Pfizer announced that it had reached agreement to acquire Seagen for \$229 per share, valuing the company at \$43bn. At the time of the announcement, Seagen was IBT's largest portfolio holding, representing 10.2% of NAV. The share price of Seagen had been rising steadily since the end of February; however, the agreed price still represented a 33% premium to the previous close. In the April factsheet, Seagen remained IBT's top holding, representing 11.2% of NAV.

FTC intervenes in Horizon acquisition

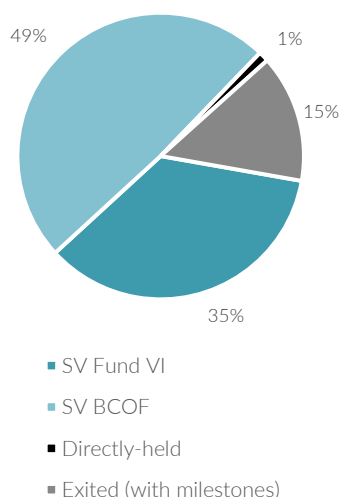
FTC intervention on Horizon has taken some shine off Seagen's share price

As mentioned earlier, on 16 May, the FTC decided to intervene in the Amgen agreement to acquire Horizon, by filing a lawsuit seeking an injunction to prevent the deal from closing, so that the FTC can give further consideration on whether the deal violates antitrust law. The stance being taken by the FTC is unusual. This is the first case where the FTC is attempting to block a merger on the theoretical basis that it will hamper innovation and slow the pace of drug development, a novel path that is not supported by underlying antitrust laws according to Washington Analysis Group.

These situations usually take about nine months to resolve. Consequently, the market became nervous about the Amgen-Horizon deal closing. A knock-on effect of this FTC intervention was a fall in the Seagen share price to an 18% discount to the offer price from Pfizer. At the time of writing, the Seagen share price was trading at a 13% discount to the offer price. Having prudently reduced its holding in Horizon, we expected that the IBT fund managers would take a similar approach with its Seagen holding as and when market opportunities arise. This was duly confirmed in the May 2023 factsheet, showing that Seagen was no longer in its top-10 holdings.

Unquoted investments

Unquoted split – 28 Feb'23



Source: IBT reports

Five exited unquoted companies where company retains rights to receive future contingent performance-based payments

Two directly held investments

Exposure to innovative technologies and early-stage companies, offering differentiated returns to those from listed investments, is achieved through holdings in funds that are run and managed by SV Health Investors. IBT aims to have exposure in the range of 5%-15% of NAV. It has investments in two funds, SV Fund VI and SV BCOF. At the period-end, IBT has exposure to a total of 31 companies via its unquoted portfolio, representing 11.8% of NAV.

IBT – unquoted portfolio	@28 Feb 2023	@31 Aug 2022
SV Fund VI (17 unlisted, 3 listed)	20	20
SV BCOF (3 unlisted, 1 listed)	4	4
Direct private holdings	2	1
Exited with milestones due	5	5
Number of investments for unquoted performance	31	30
Contribution to NAV (£m)*		
SV Fund VI valuation	16.99	18.87
SV BCOF valuation	12.27	3.41
Exited investments with contingent milestones	5.04	5.34
Directly held unquoted investments	0.43	0.34
NAV of unquoted portfolio	34.73	27.96
% IBT NAV	11.8%	9.7%

*Excludes companies fully written off

Source: IBT reports, Hardman & Co Life Sciences Research

SV Fund VI

Performance from SV Fund VI has been very good, generating a currency-adjusted internal rate of return (IRR) of 20.5% since 2016. During 1H'23, the SV Fund VI made one distribution of \$1.8m/£1.6m, offset by one cash call of \$0.9m/£0.8m.

SV BCOF

In December 2021, the board took the decision to make a commitment of \$25m in SV BCOF, a specialist biotechnology fund focused on pre-IPO and near-clinical-stage biotech companies. During 1H'23, a further \$5m commitment has been given. The fund has performed well during the period, boosted by the acquisition of Nimbus Lakshmi Inc, a wholly-owned subsidiary of Nimbus Therapeutics, by Takeda for \$4bn upfront and up to \$2bn in milestones. This resulted in a fair value uplift of £5.5m in IBT's investment in SV BCOF.

Exited investments with milestones

There are five exited unquoted companies where the company retains rights to receive future contingent performance-based payments, as shown in the table below. IBT receives its share of these rights.

Fair value of exited investments with milestones – 28 February 2023			
Investment	Acquiror/licensee	Contingency	Fair value (£m)
Ikano Ther.	UCB	Milestones and royalties	4.06
Archemix	IVERIC Bio	Milestones	0.60
Convergence	Amgen	Milestones	0.34
NCP Holdings	Accrete Health	Receivable in escrow	0.05
Spinal Kinetics	Orthofix Intl.	Milestones + escrow	0.00

Source: IBT interim report 2023, Hardman & Co Life Sciences Research

Directly held unquoted investments

IBT has two small directly held unquoted UK investments – Autifony Therapeutics and Karus Therapeutics.

Financial summary

Valuation of investments

The largest component of the income statement for each reporting period is the revaluation of IBT's investments under IFRS9. IBT classifies its investments using a fair value hierarchy, based on the following three levels:

- ▶ **Level 1:** The fair value of financial instruments traded in active markets based on quoted prices.
- ▶ **Level 2:** The fair value of financial instruments that are not traded in an active market is determined using valuation techniques that maximise the use of observable inputs and rely as little as possible on entity-specific estimates.
- ▶ **Level 3:** In cases where inputs are not based on observable market data, the instrument is included in level 3. This is the case for unlisted equity securities.

Income statement

- ▶ **P&L drivers:** The main drivers of the P&L account are the gains and losses made on investments, offset by the general operating expenses.
- ▶ **Operating expenses:** In absolute terms, the annual operating expenses are ca.£4m. This equates to ca.1.3% of NAV. The main variable is the management fee, which excludes the amount already paid by the SV funds to avoid double-counting.
- ▶ **Performance fee:** The fee on the quoted pool is 10% of relative outperformance above the NBI, plus a 0.5% hurdle. The fee on the small-legacy direct unquoted portfolio (i.e. excluding investment funds) is 20% of net realised gains, taking into account any unrealised losses, but not unrealised gains. The maximum fee, in any one year, is 2% of the average net assets.

Income statement						
Year-end Aug (£m)	2018	2019	2020	2021	2022	*2023E
Gains/(losses) on investments	21.59	-13.94	54.13	30.93	-14.70	-2.34
Effect of forex	1.05	-0.52	1.77	0.07	-4.38	0.00
Income	0.38	0.67	1.13	1.11	1.11	1.00
Total income	23.02	-13.79	57.03	32.10	-17.96	-1.34
Management fee	-1.61	-1.61	-1.88	-2.40	-2.01	-1.91
Performance fee	-0.09	-0.97	-0.24	-0.35	-0.47	0.50
<i>General expenses</i>	-0.70	-0.47	-0.62	-0.62	-0.74	-0.83
<i>Directors' fees</i>	-0.14	-0.13	-0.15	-0.17	-0.16	-0.16
<i>Administration fees</i>	-0.22	-0.22	-0.23	-0.23	-0.25	-0.27
<i>Audit fee</i>	-0.04	-0.04	-0.05	-0.06	-0.07	-0.07
Administration expenses	-1.10	-0.86	-1.05	-1.08	-1.22	-1.34
Total expenses	-2.79	-3.44	-3.17	-3.83	-3.70	-2.75
Expenses as % NAV	1.08%	1.37%	1.21%	1.26%	1.22%	0.97%
EBIT	20.23	-17.23	53.85	28.27	-21.66	-4.08
Interest payable	-0.22	-0.21	-0.26	-0.22	-0.66	-1.37
Profit before tax	20.01	-17.44	53.59	28.05	-22.32	-5.45
Reported taxation	-0.05	-0.10	-0.17	-0.16	-0.15	-0.15
Net income	19.96	-17.54	53.42	27.89	-22.47	-5.61
Ordinary shares of 25p						
in issue	37.55	38.40	38.44	41.38	40.86	40.20
Weighted average (m)	37.55	37.85	38.46	40.50	41.07	40.32
EPS (p)	53.2	-46.3	138.9	68.9	-54.7	-13.9
DPS (p)	27.0	28.0	24.8	28.4	31.4	28.4

*Based on share prices and forex at close of business on 07 July 2023
Source: IBT reports, Hardman & Co Life Sciences Research

Balance sheet

Debt: The management team has the flexibility to use local debt facilities when it is appropriate to do so. At the 1H'23 period-end, IBT had short-term debt of £28.5m, all USD-denominated. Use of debt also acts as a hedge against forex movements.

Balance sheet						
@31 Aug (£m)	2018	2019	2020	2021	2022	2023E
Share capital	10.34	10.34	10.34	10.35	10.35	10.35
Share premium account	18.81	19.99	20.43	29.87	29.87	29.87
Capital redemption reserve	31.48	31.48	31.48	31.48	31.48	31.48
Capital reserves	238.49	216.53	262.63	295.81	259.85	257.51
Revenue reserve	-36.64	-38.76	-40.98	-43.73	-46.66	-46.66
Total equity	262.47	239.58	283.90	323.78	284.89	282.55
NAV/share (p)	699	624	739	782	697	703
Non-current assets						
Investments at fair value	263.03	237.36	302.22	345.34	313.43	311.09
Current assets						
Receivables	0.05	2.62	0.16	0.94	13.49	2.00
Cash & deposits	0.14	0.89	0.32	1.56	0.00	0.00
Total assets	263.22	240.86	302.71	347.84	326.92	313.09
Current liabilities						
Short-term debt	-0.37	0.00	-18.10	-21.87	-39.98	-28.54
Payables	-0.37	-1.28	-0.72	-2.19	-2.05	-2.00
Total liabilities	-0.74	-1.28	-18.81	-24.06	-42.03	-30.54
Net assets	262.47	239.58	283.90	323.78	284.89	282.55
Net cash/(debt)	-0.23	0.89	-17.77	-20.31	-39.98	-28.54

Source: IBT reports, Hardman & Co Life Sciences Research

Cashflow

Churn rate: Over the past four years, the churn rate of the portfolio has been stable, at ca.100%. However, in 2022, revaluation of biotech was the catalyst for an increase in portfolio management, resulting in a churn rate of 136%. IBT's low trading costs mean that the churn rate has minimal financial cost to the trust.

Cashflow statement						
Year-end Aug (£m)	2018	2019	2020	2021	2022	2023E
EBIT	20.23	-17.23	53.85	28.27	-21.66	-1.88
(Inc./dec. in investments)	6.35	25.67	-64.86	-43.11	19.01	15.05
Receivables	2.79	-2.57	2.46	-0.78	-0.03	11.49
Payables	-12.92	0.91	-0.57	1.48	0.26	-0.05
Interest	-0.22	-0.21	-0.26	-0.22	-0.66	-1.37
Tax	-0.05	-0.10	-0.17	-0.16	-0.17	-0.15
Cashflow from operations	16.17	6.47	-9.55	-14.53	-3.25	23.08
Dividends paid	-10.14	-10.62	-9.55	-11.56	-12.88	-11.40
Share buybacks	0.00	0.00	-1.13	0.00	-3.53	-1.00
Shares issued	0.00	5.26	0.00	0.29	0.00	0.00
Effect of forex	0.00	0.00	0.00	0.00	0.00	0.00
Financing activities	-10.14	-5.35	-9.11	11.99	-16.41	-12.40
Change in net cash/(debt)	6.03	1.12	-18.66	-2.54	-19.66	8.48
Opening net cash/(debt)	-6.26	-0.23	0.89	-17.77	-20.31	-39.98
Closing net cash/(debt)	-0.23	0.89	-17.77	-20.31	-39.98	-31.49
Disposals during year	254.1	267.9	236.1	305.9	413.8	-
Churn rate	99%	107%	90%	101%	136%	-

Source: IBT reports, Hardman & Co Life Sciences Research

Company matters

Registration

IBT was established in 1994 as an independent investment trust whose shares are listed on the London Stock Exchange (Ordinary shares: ISIN No: GB0004559349; EPIC Code: IBT). The company is incorporated in England and Wales with company registration number 2892872.

Fund manager:

SV Health Managers LLP
71 Kingsway
London
WC2B 6ST

+44 (0)20 7421 7070
www.ibtplc.com

Investor relations:

Lucy Costa Duarte
IBT-IR@svhealthinvestors.com

Board of directors

Board of directors				
Position	Name	A	ME	N
Chairman	Kate Cornish-Bowden	M	C	C
Chair of audit committee	Caroline Gulliver	C	M	M
Independent Director	Gillian Elcock			
Independent Director	Patrick Magee	M	M	M
Independent Director	Prof. Patrick Maxwell	M	M	M

A=audit, ME=management engagement, N=nominations
M=member, C=chair

Source: Company reports

Investment managers

Investment management team	
Position	Name
Lead investment manager	Ailsa Craig
Lead investment manager	Marek Poszepczynski
Unquoted investment managers	Kate Bingham, Houman Ashrafian, SV Health Investors

Source: Company reports

Ailsa Craig

Ailsa joined SV Health Investors in November 2006 as an investment analyst for IBT, and became an Investment Manager in 2008; she is part of the public markets-focused team. Ailsa was appointed as Joint Lead Investment Manager of the trust in March 2021. Previously, Ailsa worked at Baring Asset Management for two years as a research analyst, covering pharmaceutical and biotechnology stocks. Prior to this, Ailsa worked for Insight Investment/Rothschild Asset Management (merged 2003) within the Global/US investment team. Ailsa has a BSc (Hons) in Biology from the University of Manchester. She was awarded the IMC in 2002 and the Securities Institute Diploma in 2007.

Marek Poszepczynski

Marek joined SV Health Investors in 2013, working as a Portfolio Manager for International Biotechnology Trust plc, and was appointed as Joint Lead Investment Manager of the trust in March 2021. One of his strengths lies in analysing companies, with a particular attention on identifying potential M&A targets. Marek has more than 15 years of international experience in the life sciences industry, with a focus on licensing and financing. He held management positions at Handelsbanken (2010-12) as lead equity analyst and as a VP in Business Development at Karolinska Development AB (2008-10), and he was Licensing Director at Biovitrum AB (2002-08). Marek has participated in two initial public offerings and a number of licensing and asset transfer transactions, and he received the Swedish Entrepreneurial Distinction 2015 through the founding, running and divesting of a profitable contract research organisation. Marek holds MScs in Biochemistry and Business Management from the Royal Institute of Technology, Stockholm, Sweden.

Kate Bingham

Kate has been with SV Health Investors for 30 years, where, as Managing Partner, she co-leads SV's biotech franchise, which has a long history of building high-value, successful companies developing transformational medicines and bringing drugs from discovery to market. Many of these investments are examples of SV's company creation approach to biotech investing, and include a wide range of drug discovery and development companies in the UK, EU and US, focused on different clinical areas. Kate played an active role in setting up the Dementia Discovery Fund (DDF, managed by SV), and serves on its investment committee. Prior to joining SV, Kate worked in business development for Vertex, a biotechnology company in Cambridge, MA, and at Monitor Company, a strategy consulting firm, also in Cambridge, MA. Kate has a first-class degree in Biochemistry from the University of Oxford, and an MBA from Harvard Business School (Baker Scholar). In 2022, Kate was awarded the National Venture Capital Association's Excellence in Healthcare Innovation award. Outside of SV, Kate was awarded Dame Commander of the British Empire (DBE) in 2021, and won the Lifetime Achievement Award, presented by the BioIndustry Association UK in 2017. She also serves on the board of the Francis Crick Institute. In May 2020, Kate was appointed Chair of the UK Vaccine Taskforce reporting to the Prime Minister to lead UK efforts to find and manufacture a COVID-19 vaccine, on a six-month engagement. She stepped down as Chair in December 2020, after the UK became the first western country to commence COVID-19 vaccinations.

Houman Ashrafian

Houman joined SV Health Investors in 2016 as a Venture Partner, was promoted to Partner in 2017, and became a Managing Partner in 2018. Houman has founded six companies – Sitryx, Enara Bio, TRexBio, Alchemab, Catamaran Bio and Mestag – and serves on the board of four of these companies – Enara Bio, Alchemab, Catamaran Bio and Mestag. He also serves on the boards of Therini, Imbria, Prilenia and Quell. In addition, Houman serves on the DDF Investment Committee. Prior to joining SV, Houman co-founded the services company, Cardiac Report, in 2003, as well as Heart Metabolics, in 2008. Heart Metabolics successfully repositioned perhexiline as a treatment for hypertrophic cardiomyopathy and heart failure. Perhexiline is now in advanced clinical trials, and has orphan drug designation. Houman went on to become Vice President and head of the Clinical Science Group at UCB Pharma. Houman is a graduate of the University of Cambridge, and qualified as a medical doctor at the University of Oxford. He also has a PhD in medical sciences from the University of Oxford. He is Visiting Professor and Head of Experimental Therapeutics at the University of Oxford.

Share capital

On 7 July 2023, there were 41,383,817 Ordinary shares in issue, of which 1,179,258 are being held in treasury (520,808 at 31 August 2022).

Glossary

BCOF	Biotech Crossover Opportunities Fund
CMS	Centers for Medicare & Medicaid Services
DDF	Dementia Discovery Fund
ESG	Environmental, social and governance
FDA	US Food & Drug Administration
FTC	US Federal Trade Commission
IBT	International Biotechnology Trust plc
IP	Intellectual property
IRA	Inflation Reduction Act
M&A	Mergers and acquisitions
NAV	Net asset value
NBI	Nasdaq Biotechnology Index
NCE	New chemical entity
NGS	Next-generation sequencing
PDUFA	Prescription Drug User Fee Act
R&D	Research and development
Rx	Prescription
SV	SV Health Investors
VC	Venture capital
XBI	S&P Biotech ETF Index

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