



## Seraphim Space Investment Trust

Investment companies | Initiation | 14 August 2024

### Science fiction becoming science fact

The manager of Seraphim Space Investment Trust (SSIT) says that the recent boom in the space economy has been driven by significantly lower costs to launch, smaller, cheaper components to build satellites and other spacecraft, and the growth of private space companies. Companies that once had to pay hundreds of thousands of dollars to put a satellite into orbit can now do the same for a fraction of that price.

With this dramatically expanding access to space and the growing requirements and use cases for space technologies in virtually every industry on our planet, the space sector is projected to grow into a trillion-dollar market opportunity.

There are many companies with rapidly expanding revenues and profits derived from this sector, however most of these are currently unlisted. SSIT provides a unique way for ordinary investors to access these potential world changing opportunities.

SSIT believes that the companies in its portfolio have the potential to be valued in the 10s of billions and that, over the long term, the initial ambition of producing annualised returns of 20% or more will be realised. It wants to get the trust trading back at asset value and expanding once again.

### The world's first listed space tech fund

A diversified, international portfolio of predominantly growth-stage, privately-financed 'SpaceTech' businesses that have the potential to dominate their field and are category leaders with first mover advantages in areas such as global security (defence), climate and sustainability, connectivity, autonomous mobility, IOC (initial operating capability) and smart cities.

Sector	Growth capital
Ticker	SSIT LN
Base currency	GBP
Price	49.4p
NAV <sup>1</sup>	95.4p
Premium/(discount)	(48.2%)
Yield	Nil

Note 1) Last published 95.37p as at 31 March 2024



The space sector is projected to grow into a trillion-dollar market opportunity



Lower launch costs are an enabler for rapid growth in the space economy



SSIT provides a unique way for ordinary investors to access potential world changing opportunities



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<b>Domicile</b>	<b>England &amp; Wales</b>
<b>Inception date</b>	<b>14 July 2021</b>
<b>Manager</b>	<b>Seraphim Space LLP</b>
<b>Market cap</b>	<b>117.2m</b>
<b>Shares outstanding (exc. treasury shares)</b>	<b>237.2m</b>
<b>Daily vol. (1-yr. avg.)</b>	<b>363,358 shares</b>
<b>Net gearing</b>	<b>Nil</b>

[Click for an updated SSIT factsheet](#)



[Click for SSIT's peer group analysis](#)



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## At a glance

### Share price and discount

SSIT's shares briefly traded at a premium to **net asset value** (NAV) post-IPO, but its **discount** widened over 2022, reflecting the sentiment shift away from growth stocks that occurred as central banks began to raise interest rates in response to higher inflation. Whilst it has narrowed significantly since as interest rates have receded, it remains very wide, which we think does not adequately reflect either the increasing maturity of SSIT's underlying holdings or the scarcity of these assets and their longer-term growth potential.

### 14 July 2021 to 12 August 2024



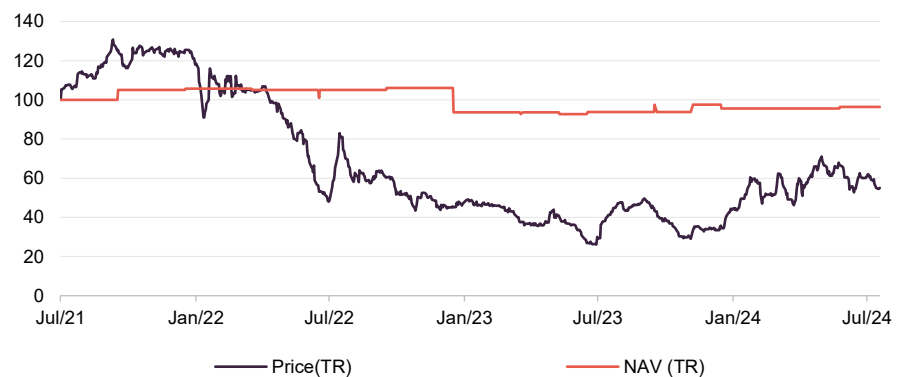
Source: Morningstar, Marten & Co

### Performance since launch

The largest detractor from SSIT's performance has been its listed equity allocation, which (as of 31 December 2023) was down some 87% versus its initial cost, whereas the valuation of its private portfolio was up 21% versus initial cost.

The team attributes much of the fall in the value of its listed holdings to fundamental issues with some stocks.

### Time period 14 July 2021 to 31 July 2024



Source: Morningstar, Marten & Co

12 months ended	Share price total return (%)	NAV total return (%)	MSCI ACWI total return (%)
31/07/2022	(19.0)	5.1	1.8
31/07/2023	(49.0)	(10.7)	6.8
31/07/2024	33.2	2.7	17.2

Source: Morningstar, Marten & Co

More information is available on the trust's website [investors.seraphim.vc](https://investors.seraphim.vc)

## Fund profile

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SSIT aims to generate capital growth over the long term through investment in a diversified international portfolio of SpaceTech businesses (which SSIT defines as entities that rely on space-based connectivity and/or precision, navigation, and timing signals or whose technology or services are already addressing, originally derived from, or potentially benefiting, the space sector).

SSIT was launched in July 2021, hitting its capital raise target, and starting life with cash of about £178.4m. As we discuss on page 25, the fund also issued shares in exchange for stakes in businesses. Total assets at the end of December 2023 were £224.3m.

SSIT's **AIFM** is Seraphim Space Manager LLP (Seraphim). The management team's details are available on page 26.

### Measuring success

SSIT is targeting annualised NAV returns of 20% over the long term. The trust has no formal index benchmark, but as it has a global portfolio, we have compared it with the MSCI All Countries World Index (MSCI ACWI) for simplicity's sake. The company also compares itself to the MSCI World Aero and Defence Index.

## The space sector is already lifting off

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Space economy to triple in size by 2035?

A **recent study** by McKinsey and the World Economic Forum estimated that by 2035 the space economy could be worth \$1.8trn, up from about \$630bn in 2023. The industry extends way beyond rockets and satellites and will impact on a whole range of industries. From the start of the space race to the end of 2023, about 17,000 satellites had been launched, but half of those had been launched since 2020. We will likely end up with a multiple of that.

Seraphim's Mark Boggett describes a four-stage opportunity.

### Space 1.0 (the past)

In the first stage, space was the prerogative of State-sponsored entities and telecom companies. Satellites were expensive to create and launch, and the focus was on keeping the satellite functioning so that it would earn this back. Innovation, complexity, and often even attempts to upgrade the software were shunned as it increased the risk of a satellite failure. That meant that, surprisingly, the space sector was slow to embrace many technological advances.

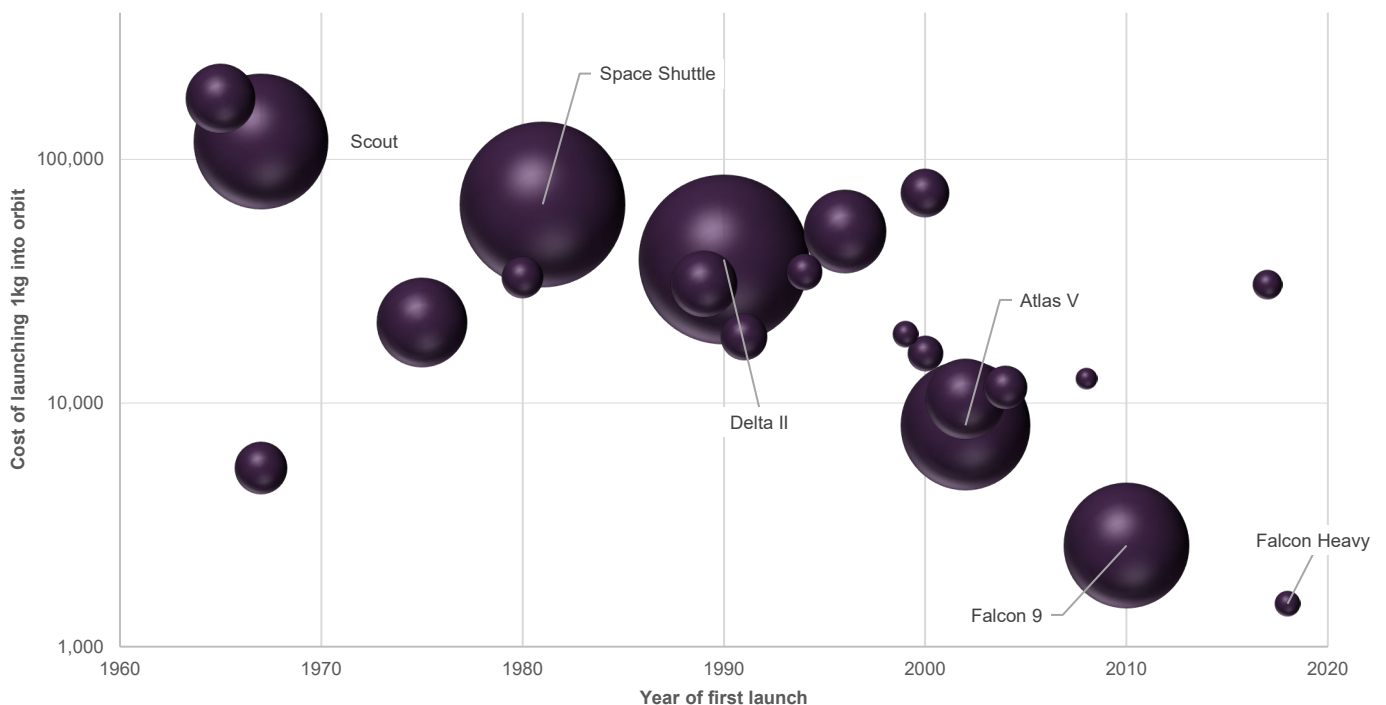
### Space 2.0 (present day)

In 2002, Elon Musk founded SpaceX, with the initial ambition of reducing launch costs. To achieve this, it adopted modern manufacturing techniques, including 3D printing of parts, using standard components similar to those found in a mobile phone device, and – crucially – making some components reusable.

Launch costs have plummeted

The success of that company has transformed the industry, driving down the costs of launching payloads into orbit. Figure 1 shows launch cost data that was compiled by the Center for Strategic and International Studies in 2022. At that time, Falcon Heavy had achieved three launches (illustrated by the size of the bubble on the chart), and Falcon 9 had achieved 76. Updated numbers from SpaceX show that Falcon Heavy has now achieved 10 launches and Falcon 9 an incredible 361, a multiple of the most successful launch vehicles of earlier years (141 launches for Delta II and 134 launches for the Space Shuttle).

**Figure 1: US launch costs by rocket type up until end August 2022 (size of bubble denotes number of launches at that date)**



Source: Center for Strategic and International Studies (based on original work by Thomas G Roberts), Marten & Co

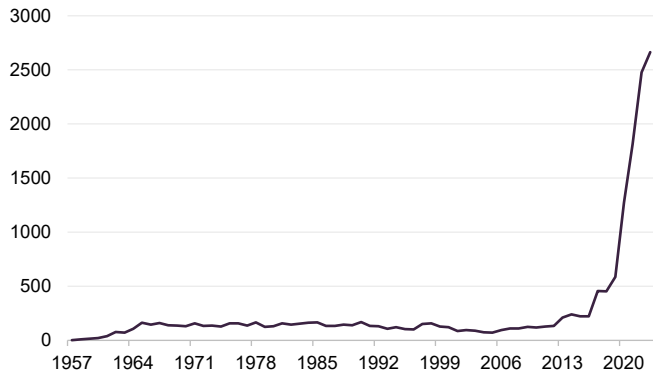
Falcon 9 is designed to lift up to 22.8t into low Earth orbit (LEO). The equivalent figure for the Falcon Heavy is 63.8t, and – once it is working – the figure for Starship should be 100t–150t, and that could bring the cost of launching a kilogramme into orbit below \$1,000. Mark points out that SpaceX is by no means the only player in the market – there are more than 100 alternative launch companies, many of them backed by local military wanting a national champion. However, with competition this intense and the presence of participants that are not necessarily motivated by revenue or profits, Seraphim has decided it will not invest in this part of the market.

Lower launch costs are the enabler for rapid growth in the space economy

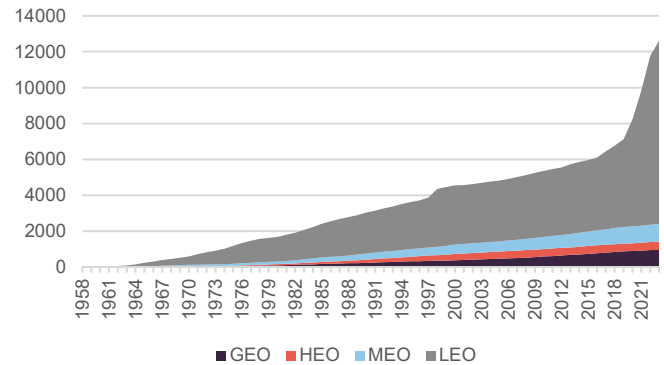
With lower launch costs, more launches, and – thanks to new technology – smaller lighter satellites, the number of satellites has soared, and their uses have multiplied. We are now capable of launching hundreds or even thousands of satellites in a single constellation, building a digital infrastructure in the sky.

Seraphim thinks that we are still at the early stages of exploiting this new space-based infrastructure, and that many of the most successful space companies of recent years still have potential for significant growth.

**Figure 2: Annual number of man-made objects launched into orbit**      **Figure 3: Satellites in orbit**



Source: United Nations Office for Outer Space Affairs



Source: United States Space Force via Our World in Data, in each case EO stands for Earth orbit, the four orbits are Geostationary, High, Medium and Low

As the degree of satellite coverage of the Earth's surface increases, opportunities arise to provide real-time data. The resolution of the data is much higher than it used to be and covers much more than just visual images. Mark cites the examples of ICEYE (see page 17), which has 34 radar satellites (with another 13 planned by the end of 2024) giving 50cm resolution and images every two hours, 24 hours a day that are not blocked by cloud cover, and SatVu, which – until its satellite suffered an anomaly (see page 22) – was providing infrared images that can see into buildings. SatVu have already planned their next launch in 2025.

Use cases include natural disaster prediction and relief, improving agricultural output, bringing connectivity to areas that are currently dark or underserved, helping to conserve water; monitoring weather patterns on behalf of farmers and insurance companies; preventing illegal logging, fishing, and smuggling; thermal imaging data to improve energy efficiency; and defence and security management – paramount in areas of growing geopolitical tensions.

Such information is no longer restricted to countries with big defence budgets, and this changes the game, making the data more of a must-have.

As companies launch new services, they are building patent libraries to protect their intellectual property, giving them a first mover advantage that may be hard to dislodge.

### Space 3.0 (the near future)

As lifting costs fall, it becomes easier to envisage building infrastructure in space. Mark suggests that one easy-to-comprehend use case is building data centres in space. One problem with land-based data centres is the heat that they produce; this would no longer be an issue. Solar power is plentiful and, if you are in the right orbit, available 24/7. Latency is an issue, and this means that it cannot replace all land-

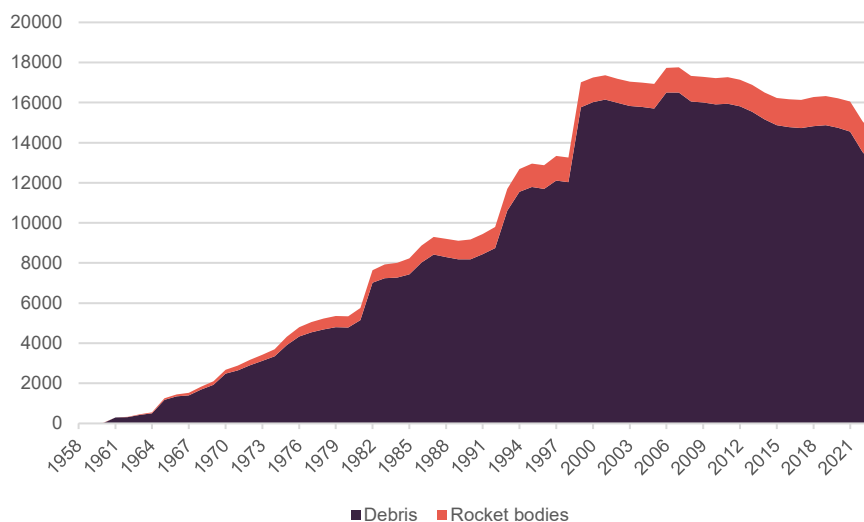
based data centres, but there is still a significant addressable market. Similarly, non-time-critical data transmission could be routed via space.

There is also the potential to benefit from zero-gravity (zero-G) manufacturing of lightweight but expensive products such as cutting-edge chips, pharmaceuticals, and new materials. The unique environment of zero-G also allows for manufacturing methods. For example, there have already been examples of this in protein crystallisation experiments in space. A low-gravity environment has several advantages that can accelerate the discovery and preclinical testing of complex molecules. Researchers in the pharmaceutical industry have been conducting biomedical research in the zero-G environment, to create therapies that can improve health back on Earth.

Managing the space environment is important too, as debris of failed satellites and wastage from launches accumulates and poses a threat (given that objects in low Earth orbit tend to be travelling at about 17,000mph). Space agencies and inter-governmental organisations are exploring how best to tackle this.

In addition to the satellite data in Figure 3, the data in Figure 4 represents debris and spent rocket bodies that are being monitored by the United States Space Force. This does not include smaller objects that are harder to track. Two more of SSIT's investments LeoLabs and D-Orbit (see pages 18 and 19) are both providing services that seek to address this issue and have an enormous potential opportunity.

**Figure 4: Large debris and spent rocket bodies in orbit**



Source: United States Space Force via Our World in Data

## Space 4.0 (where next?)

This is about colonising space, mining asteroids, bases on the moon and (as Elon hopes) on Mars. For Seraphim, this is currently too far on the speculative end of investment, and SSIT has no direct exposure to these themes.

## Pioneers in space investment

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Core management team has worked together for 18 years

Seraphim's three general partners – Mark Boggett, James Bruegger, and Rob Desborough (see page 26 for their biographies) – have worked together since 2006. Initially, they were generalist technology investors, but over time, they developed an interest in space. In 2014 they decided to launch a **venture capital** fund dedicated to this area, the first of its kind. That process took about 18 months, and the fund, Seraphim Space Ventures I LP, made its first investment in October 2016.

First mover advantage

The team could see that the space sector was beginning to adopt and benefit from progress elsewhere in the technology sector, and the potential that this development had to create new markets and new companies. There was also a clear first-mover advantage available.

Tapping into the expertise of some of the world's largest space businesses

The team began by talking to the UK Space Agency, which introduced them to 11 of the world's largest companies with an interest in the sector – the likes of Airbus, Teledyne, SES, and Telespazio. Six of these became limited partner (LP) investors in the original fund, perhaps attracted by the opportunity that this would provide to see new opportunities and competitive threats in the sector. In return, Seraphim was able to tap into the expertise within these firms to assist in its due diligence on potential investments.

SSIT can pick from the best of Seraphim's VC investments

As the venture portfolio matured, SSIT's launch in 2021 gave Seraphim the capital it needed to participate in the next phase of growth of the venture fund's best investments.

SSIT is a growth capital fund, whilst the LPs are venture capital funds. However, Seraphim also gets to know promising companies at an early stage through the **Seraphim Space Accelerator** programme. Run twice a year, and just closing its 13<sup>th</sup> round of entries in London, San Francisco, and Singapore, this nurtures start-ups from the pre-seed (the initial capital raise) funding stage through to series A funding (an early-stage investment round providing outside investors the opportunity to invest cash in a growing company). It helps entrepreneurs (often engineers) to position their businesses to attract capital, introducing them to a global syndicate of around 300 venture capitalists. Since it launched, it has helped 100 start-ups in 27 countries attract over \$340m of capital.

The accelerator programme provides an invaluable pipeline of potential deals

As part of the process, Seraphim retains a two-year option to back these businesses at a later stage, providing an invaluable pipeline of potential deals for SSIT that are more securely proven from a technological and commercial viewpoint.

Alongside this, Seraphim continues to back venture-stage businesses. In April it announced the first closing of Seraphim Space Ventures II LP. Partners include NEC, Eutelsat, and SKY Perfect JSAT (Asia's largest satellite communication and multi-channel pay TV company).



## The Seraphim Space Index report

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In 2017, Seraphim launched its Seraphim Space Index report, which tracks investment in the sector, collecting data on 1,913 transactions worth \$44bn from The first quarter (Q1) of 2017 to end Q2 2024. The data is analysed in accordance with a taxonomy that Seraphim devised (see below).

### Product

- Packaging of different data streams (space and non-space)
- Tailored to specific use cases in specific verticals
- Location, monitoring, insight, mapping

### Build

- Building & selling satellites, autonomous systems
- Components, sub-systems, complete systems
- Hardware (sensors), software (such as control systems), hybrid (such as machine vision)

### Platforms

- Any data collection/space platform (such as small-sat, high-altitude platform stations – also known as HAPs)
- Multi-modal: look, listen, communicate

### Analyse

- Analysis of data from space/aerial platforms
- AI machine-learning-enabled analytics

### Launch

- Building & launching rockets
- Launch-related services

### Beyond Earth

- In-space infrastructure (such as space stations)
- In-space services (such as satellite refuelling, servicing, and repair)
- Utilising the microgravity environment for research and development (R&D) and manufacturing

### Downlink

- Facilitate transmission of data from space/aerial platform back down to earth
- Satcoms (satellite communications) & terrestrial communications networks
- Data storage, processing, security

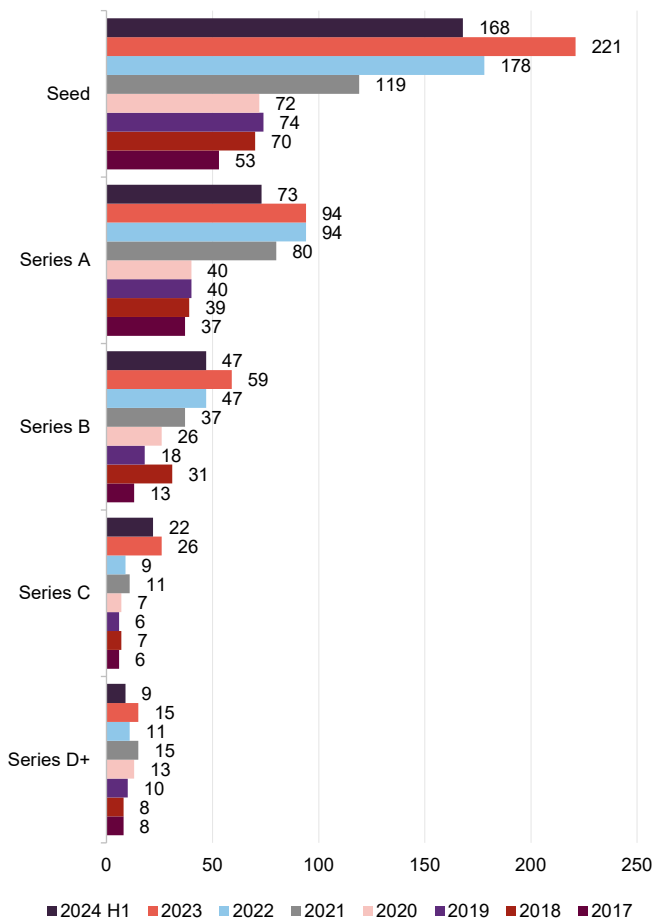
As Figure 5 overleaf shows, the bulk of deals by number are at the seed capital stage (955 deals in total) but the amounts raised are relatively small, averaging about \$2.5m per transaction. By contrast, 89 series D and higher deals have raised an average of \$215.6m or \$19.2bn in total.

The number of deals has tended to grow year-on-year. However, as Figure 8 illustrates, the value of deals peaked in 2021 and has yet to recover. Nevertheless, with \$5bn of deals concluded in the first half (H1) of 2024, there is a chance that 2021's total could be surpassed this year.

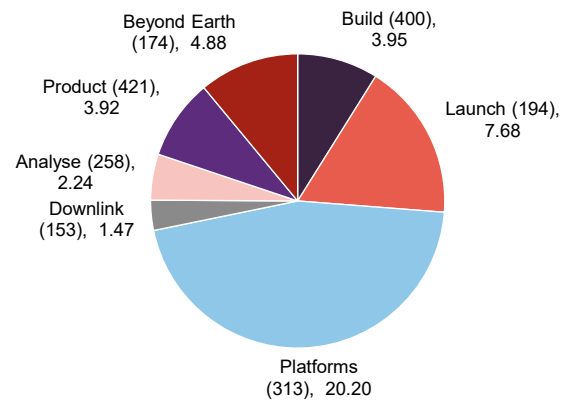
An analysis by sub-sector, as shown in Figure 6, suggests that the number of deals is reasonably distributed across the various sub-sectors. However, by value, platforms and launch have attracted the most capital.

Compiling the index brings Seraphim into contact with deals and investors that it might not otherwise have seen and helps maximise Seraphim's knowledge of the sector.

**Figure 5: Number of investments by stage and Figure 6: Value in \$bn (and number) of deals by sub-sector since 2017**

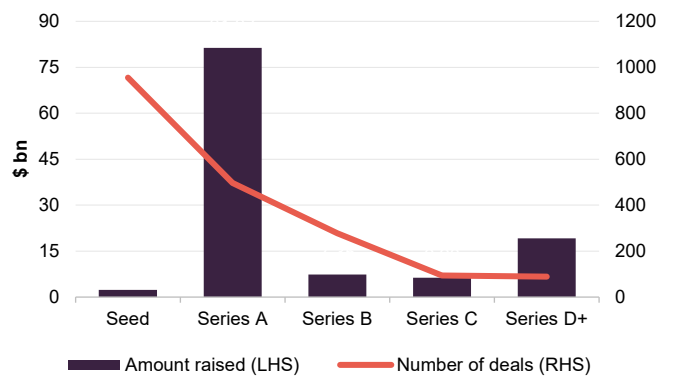


Source: Seraphim



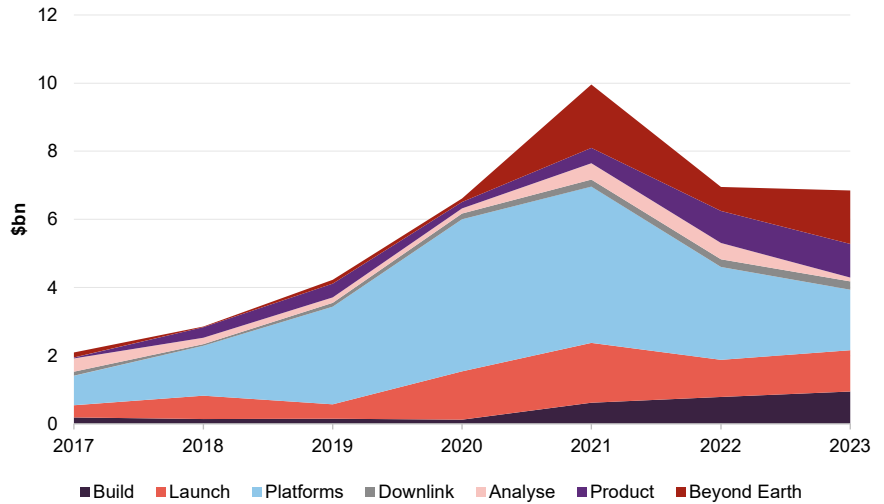
Source: Seraphim

**Figure 7: Number of deals by sub-sector**



Source: Seraphim

**Figure 8: Value of deals by year 2017–2023**



Source: Seraphim

## Investment approach

Seraphim's activities keep it at the forefront for those looking to raise capital

The Accelerator programme, the Space Index, Seraphim's participation at industry events, and the considerable volume of thought leadership pieces that Seraphim publishes (including a [podcast](#)) all help keep it at the forefront of the minds of those companies looking for capital. Seraphim believes that this gives it unrivalled insight to the universe of potential deals.

Seraphim see over 75% of space sector businesses looking for investment. The level of deal flow enables Seraphim to spot those with the best team, strategy, technology, and traction. Seraphim says that other investors take comfort from Seraphim backing a company, and this helps these businesses attract more funding from non-space specialists.

As discussed above, leveraging the knowledge of Seraphim's partners in its venture funds enhances Seraphim's due diligence process on potential investments.

Once SSIT is ready to make an investment, wherever possible, deals are structured to include an element of downside protection, usually by investing through preference shares, which rank higher than common equity in the event of a liquidity event. These preference shares also come with weighted average antidilution protection and/ or liquidation preference. All of SSIT's investments in the top 10 private companies in the portfolio are structured in this manner.

SSIT operates with a reasonably concentrated portfolio of 20 to 50 positions. Position sizes reflect the manager's views on the risks and rewards offered.

## Environmental, social, and governance (ESG)

SSIT's manager is a PRI signatory

SSIT's investment manager is a signatory to the UN Principles of Responsible Investment and has also participated in the consultation process to develop the Space Sustainability Principles by the Earth & Space Sustainability Initiative. It publishes what it calls its "responsible investment policy" and readers interested in more details can [click here](#) to read it.

All portfolio companies are encouraged to integrate ESG considerations into their own strategies

SSIT's manager actively encourages all of its portfolio companies to integrate ESG considerations in their own business strategies and plans for value creation. For example, in September/October 2022, the manager organised training sessions delivered by sustainability consultancy Sancroft International for the management teams of SSIT's portfolio companies.

SSIT's manager believes space tech can contribute significantly to achieving SDGs

The manager works with the boards and management teams of portfolio companies to identify and address sustainability risks, capitalise on opportunities and meet established ESG objectives – both within their own operations and throughout their value chains. The manager also works with its co-investors to increase collective influence in these areas.

SSIT's manager sees SpaceTech as a powerful growing industry that it believes can contribute significantly to achieving the United Nations **Sustainable Development Goals** (SDGs) and the targets that underlie these. It highlights that satellites constantly monitoring Earth can help to track climate change and its effects (for example, rising sea levels, crop yields, wildfires, and atmospheric changes) and that, by providing the most accurate weather reports, they can help warn us of impending natural disasters. Satellites can also connect every individual on the planet, delivering real time data that supports global security, food security, climate change and sustainability. Reflecting this, each portfolio company contributes to at least two, and up to 11, SDGs and every single SDG is addressed by at least one of SSIT's portfolio companies.

The manager also considers the extent to which portfolio companies contribute to the SDGs as a key factor in the success of its investment strategy, and this impact is considered as part of the investment process. In situations where a portfolio company has failed to adequately address any significant risks identified at investment, the manager will take this into consideration when assessing follow-on investment opportunities.

SSIT began collecting data on various ESG metrics (such as carbon emissions, job creation and diversity) beginning in its financial year ended 30 June 2022 and plans to increasingly report on such metrics (for the portfolio in aggregate) in the future. SSIT also collects qualitative data on the following:

- effective board and risk management;
- business ethics, legal and compliance;
- data security and customer privacy;
- health and safety;
- employee engagement, diversity and inclusion;
- product quality and safety;
- community relations;

- energy management;
- greenhouse gas emissions; and
- materials management.

The manager says that, as at 30 June 2023, 95% of SSIT's portfolio provided this data, with the remaining 5% composed predominantly of listed portfolio companies or private companies where SSIT has no information rights.

## ESG points system for private companies

SSIT's manager allocates points (up to a maximum of 15) to private portfolio companies, based on the number of measures that it would like to see, and which they have in place, to manage ESG risk. This includes the frequency of discussion of these topics by the board, and the policies and processes the companies have to assess and mitigate such risks. As at 30 June 2023, 67% of the manager's desired measures were in place across the portfolio, which rises to 71% for companies that are post-series A (all on a fair value basis).

## Investment restrictions

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SSIT operates under the following investment restrictions. At the time of investment:

- the largest position in one single portfolio company or other entity will not exceed 20% of SSIT's gross asset value;
- the value of the next largest position will not exceed 15% of gross asset value; and
- aggregate investment in publicly quoted companies will not exceed 30% of gross asset value.

Generally, SSIT will not invest in quoted companies that it has not previously held as unquoted companies. However, it retains the flexibility to invest up to 5% of gross asset value in such companies.

## Exits

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As with any growth capital investor, Seraphim is aware that some of these businesses will fail. However, the expectation is that the returns achieved by the ones that succeed should far outweigh the costs of those that do not. As we discuss from page 20 onwards, notwithstanding the dramatic falls in the share prices of some of SSIT's listed companies, the unlisted portion of the portfolio is performing well, which could be an indication of the benefits of Seraphim's investment approach.

Profitability will happen in time, for example one of the top 10 holdings ICEYE continues to see significant growth, finishing 2023 with more than \$100m in revenue. This is an evergreen (no fixed end date) fund and Seraphim wants to run its winners, holding them beyond IPO in many cases. It stresses that the best of these companies can grow revenues and earnings to many multiples of what they are currently, as these sectors – which are still embryonic – develop and mature. M&A is likely, as existing players and even national defence agencies seek to snap up exciting businesses. More mainstream private equity firms and sovereign wealth

Seraphim wants to run its winners

funds are also becoming increasingly interested (BlackRock led Hawkeye 360's recent \$58m series D fundraising, for example). However, where possible, Seraphim would prefer to back its portfolio for the long term, rather than bringing in additional external partners.

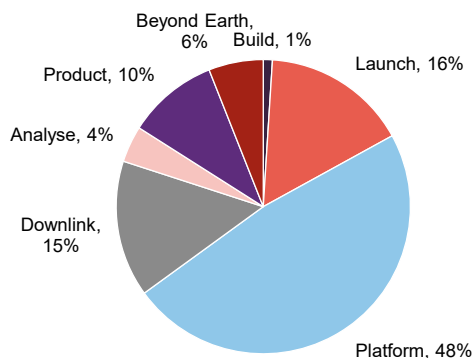
## Asset allocation

At end December 2023, SSIT had 33 companies in its portfolio, valued at £198m, an increase of £190.2m from 30 June 2023. As is illustrated in Figure 13 below, the portfolio is concentrated with the top 10 holdings accounting for 75.4% of the portfolio as at 31 December 2023, a modest increase from 72.2% as at 30 June 2023.

Figure 9 shows that SSIT offers exposure to a range of different subsectors. Platforms, at 48% of the portfolio, dominates, but this also comprises a range of different businesses (for example, D-Orbit's ION satellite carrier qualifies it as a platform business, while ICEYE's miniaturised satellite constellation is a platform for earth observation).

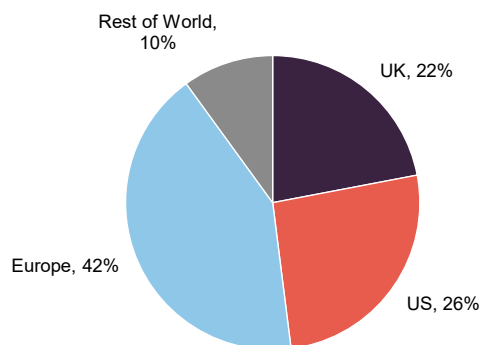
Figure 10 provides an illustration of the split by geography of SSIT's portfolio company. This shows that the portfolio has good diversification and is not overly dependent on any one jurisdiction.

**Figure 9: SSIT portfolio by sub-sector as at 31 December 2023**



Source: Seraphim Space

**Figure 10: SSIT portfolio by geography as at 31 December 2023**



Source: Seraphim Space

£5.7m invested over H2 2023

## Recent investment activity

Investment activity during the second half of 2023 comprised a £2.8m follow-on investment in UK company ALL.SPACE (see below) in its series C round in July 2023 (ALL.SPACE plans to invest in the remaining development to get its first production model into market and grow its sales efforts); a new investment of £1.6m in US company Skylo as part of its US\$37m series A round (this was led by major investors, Intel Capital and Innovation Endeavors, with participation from a strong syndicate); two new early stage investments totalling £0.9m, and two early stage follow-on investments totalling £0.5m.

On 22 April 2024, SSIT sold all of its equity interests in nine early-stage portfolio companies to Seraphim Space Ventures II LP for £3.8m. The sale price has been settled through the issuance of an interest in the venture fund, which has a 10-year life and will invest in in seed and series A stage space tech companies globally. The manager believes this focus on earlier-stage companies will complement SSIT's investment strategy which remains focused on growth stage opportunities. SSIT should also benefit by getting exposure to a broader pool of these early-stage opportunities. The valuation was established by an independent valuation agent (Azets) and was a small premium to the £3.5m aggregate acquisition price paid by SSIT for these stakes when it acquired them from Fund I.

SSIT says that this investment is a one-off transaction that represents 100% of SSIT's commitment to Fund II, and SSIT will not make any further commitments to it. SSIT will not incur any management fees or be subject to carried interest as a limited partner fund, which represented 1.7% of NAV as at 31 December 2023. There was no change to SSIT's NAV as a result of the transaction.

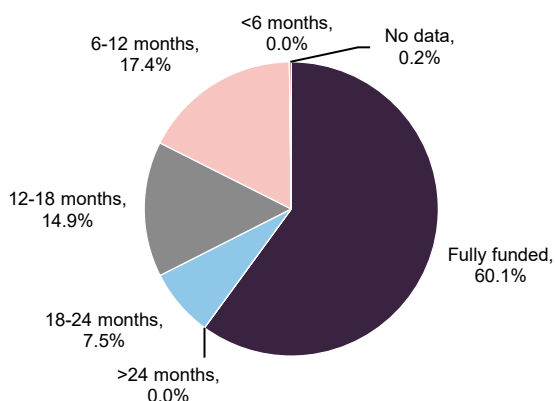
### Portfolio cash runway and SSIT cash burn

Figures 11 and 12 provide illustrations of the breakdown of SST's portfolio by its funding requirements through to **cash-flow** break-even, in terms of fair value and number of companies respectively, as at 31 December 2023. These figures were based on latest projections from the portfolio companies' management teams at that time.

In terms of portfolio value, the majority of the portfolio (60.1%) was fully funded through to cash-flow break-even, and at the other end of the spectrum, there was just a tiny proportion of the portfolio (0.2%) where SSIT had no visibility of the funding needs or where funding would be required within six months.

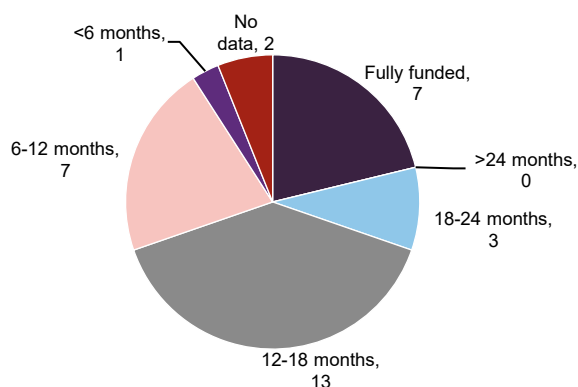
Figure 11 also shows that, for those companies that have funding requirements, there is a reasonable spread in terms of when these companies will need to raise cash: 17.4% of the portfolio (by fair value) falls within six to 12 months, 14.9% within 12 to 18 months and 7.5% within 18 to 24 months.

**Figure 11: SSIT portfolio by funding duration as at 31 December 2023 (fair value)**



Source: Seraphim Space

**Figure 12: SSIT portfolio by funding duration at 31 December 2023 (number of companies)**



Source: Seraphim Space

It is worth noting that, despite a perception that the fundraising environment is challenging at present, eight portfolio companies were able to raise cash during the second half of 2023, pulling in over \$185m in aggregate. In addition, of the eight existing portfolio companies that raised money, six of these had participation from or were led by external investors, illustrating that there is still appetite in the market. Three of these funding rounds were flat or up and three were down. Of the three that were down, two were due to underperformance versus previous expectations, and one represented a small reduction versus a previous fundraising conducted at the height of the market in late 2021.

As at 31 December 2023, SSIT had cash and equivalents on its balance sheet of £26.78m

As at 31 December 2023, SSIT had cash and equivalents on its balance sheet of £26.78m, which is a reduction of £8.53m from the £35.31m held at 30 June 2023. However, £0.99m of this related to repurchases and £5.31m to purchasing investments, and so the ongoing cash requirements to run SSIT are significantly lower and are principally made up of the management fee (£1.42m for the six-month period) and other operating expenses (£0.72m).

Crudely speaking, if SSIT made no further investments or share repurchases and received no interest income (it benefitted from income of £0.3m during the second half of 2023), its current cash reserves should cover it for the next six years.

As SSIT is in receipt of income, and portfolio companies have been able to raise cash at what appear to be sensible valuations, the funding requirements of the portfolio should be manageable.

## Maturity profile

SSIT is a growth capital fund, and as such its portfolio is skewed towards businesses that have moved beyond the seed and series A stage. SSIT invests in more mature companies which have commercialised – or are in the process of, commercialising – their products and achieving profitability. SSIT effectively piggybacks on Seraphim’s venture capital arm to filter out companies which carry material execution risks and are often in the earliest of their commercial life; e.g., start-ups. In practical terms, SSIT’s investments are made at the later stages of the funding cycle, with around 70% invested in series C or D funding, the latter stages of funding prior to IPO.

## Top 10 investments

Figure 13 lists SSIT’s top 10 holdings as at 31 March 2024. Since 30 June 2023, Altitude Angel has dropped out of this list, to be replaced by Xona Space Systems.

Over the first three quarters of the financial year ended 30 June 2024, there was a notable increase in the value of D-Orbit. The company raised €100m in the first close of its series C funding round in January 2024 at a higher price than in previous rounds, and SSIT’s end March 2024 valuation reflects this up round. D-Orbit, discussed below, has continued to make good progress – for example, closing multi-million euro contracts with the European and Italian Space Agencies during 2023. The markdown in the fair value of SatVu, which reflects its failed satellite, offset the gains made by ALL.SPACE, HawkEye 360 and LeoLabs. The downward movement in the value of Astroscale, which listed on the Japanese stock market in June 2024, reflects a fall in its share price post IPO.



**Figure 13: SSIT 10-largest holdings as at 31 March 2024**

Stock	Subsector	Country	As at 31/03/24 (%)	As at 31/03/24 (£m)	As at 30/06/23 (£m)	Change (£m)
<b>ICEYE</b>	Platform/Earth observation	Finland	20.2	45.4	45.5	(0.1)
<b>D-Orbit</b>	Launch/in-orbit services	Italy	14.8	33.5	21.4	11.9
<b>ALL.SPACE</b>	Downlink/ground terminals	UK	10.7	24.1	21.2	2.9
<b>HawkEye 360</b>	Platform/Earth observation	US	9.5	21.4	20.6	0.8
<b>LeoLabs</b>	Product/data platforms	US	5.8	13.2	12.4	0.8
<b>SatVu</b>	Platform/Earth observation	UK	4.8	11.0	14.7	(3.7)
<b>Xona Space Systems</b>	Platform/navigation	US	3.0	6.9	n/a	n/a
<b>Astroscale</b>	Beyond Earth/in-orbit services	Japan	2.6	5.9	9.8	(3.9)
<b>PlanetWatchers</b>	Analyse/data analytics	UK	2.1	4.8	4.8	-
<b>Tomorrow.io</b>	Platform/data platforms	US	1.8	4.0	3.9	0.1
<b>Total</b>			<b>75.4</b>	<b>170.5</b>		

Source: Seraphim Space

## **ICEYE (20.2%) – owns world’s largest synthetic aperture radar satellite constellation**

Founded in 2014 as a spin-off from Aalto University's University radio technology department, ICEYE ([iceye.com](http://iceye.com)) is a Finnish microsatellite company that owns the world's largest constellation of synthetic aperture radar (SAR) satellites (that use the motion of the radar antenna over a target region to provide a high-resolution image). This network, which comprises some 34 satellites, allows for the persistent monitoring of large and small locations around the world – every few hours, day and night – in any weather. The company operates from five international locations and has over 600 employees.

ICEYE's satellite network provides its customers – both governments and commercial enterprises – with objective, near-real-time insights, even in challenging environmental conditions. Its satellite constellation delivers information that is used in areas such as insurance, natural catastrophe response and recovery, security, maritime monitoring, and finance.

Traditionally, SAR satellite missions have used large and expensive platforms carrying large payloads, which are inherently expensive to manufacture and launch. However, ICEYE's miniaturised system uses an active phased array sensor, mounted on a small satellite platform, which allows for frequent imaging of any area of interest in a much more affordable way.

ICEYE says that it is the only organisation in the world that can offer high-precision, ready-made SAR satellites and that its unique satellite and antenna design offers a wide range of operational approaches. By mechanically manoeuvring a satellite and electronically steering its radar beam, large areas can be quickly covered in low resolution scan more (monitoring areas 840km by 100km with ground resolution of 15m) and then zoomed in at high resolution where required (focusing

ICEYE's system allows for frequent imaging in a much more affordable way

on areas under 5km by 5km with ground resolution of 50cm and 1cm), with other options in between.

In April 2024, ICEYE raised \$93m from investors (including Finnish sovereign wealth fund Solidium Oy) in an oversubscribed funding round. Revenue for 2023 was in excess of \$100m.

## D-Orbit (14.4%) – Last-mile delivery of satellites

Focused on the orbital transfer vehicle market

Founded in 2011, D-Orbit ([dorbit.space](https://dorbit.space)) is an aerospace company that describes itself as providing space logistics and orbital transportation services. It is primarily focused on the orbital transfer vehicle (OTV) market, also known as space tugs, where it is a market leader. The company is headquartered in Italy and has subsidiaries in Portugal, the UK, and the US.

The company initially focused on the development of an autonomous decommissioning motor for satellites and launcher stages but, in 2017 it began work on its ION satellite carrier. This is an OTV that features a customisable satellite dispenser that can carry a combination of CubeSats that fit within its volume. The carrier is then able to release these small satellites individually (they typically weigh a few kilograms each) over the course of a mission, changing the orbital parameters for each satellite as it is deployed.

ION satellite carrier can cut launch cost significantly

D-Orbit says that its system can reduce the time from launch to operations by up to 85%, with potential savings of up to 40% when deploying an entire satellite constellation. It sees the savings it can offer (both the cost and environmental benefits of efficiently combining payloads in this way) as a key factor in enabling the commercial space industry to develop.

D-Orbit has been operating commercial ION missions since September 2020 for customers that include Planet Labs, EnduroSat, Elecnor Deimos, the University of Southern California, SatRevolution, and Kleos. It has also operated payloads for HPS (of Germany), the Instituto de Astrofísica de Canarias and Cysec SA (of Switzerland). To date, D-Orbit has completed 13 orbital transportation missions, hosted 44 payloads, and deployed 100 satellites. In addition to its space logistics services, the company also offers mission control as a service and space waste management services.

## ALL.SPACE (10.7%) – revolutionising satellite connectivity

Offers a single terminal with access to multiple satellite and terrestrial networks

Headquartered in the UK, ALL.SPACE ([all.space](https://all.space)) is a communications equipment company that describes itself as “revolutionising communications with the world's only intelligent, multi-network, service enablement platform”. It is aiming to create a mesh network of satellite connectivity by developing an aerial that has the ability to connect to any satellite, in any constellation, in any orbit. Its systems offer the user a single terminal with access to multiple satellite and terrestrial networks. The terminal maps the user's data to the best available network, improving throughput, maximising uptime, and resilience, and reducing costs.

ALL.SPACE's customers are primarily in the government and defence, transport (aeronautics), satellite and telecommunications sectors. Its partners include the UK Government, the Ministry of Defence, the UK Space Agency, the Royal Air Force, Boeing, Inmarsat, Telesat, National Rail, the US Army, the US Navy, Spacebridge, SES, the European Space Agency, ST Engineering and Kratos Defence.

Providing connectivity in remote or inhospitable locations

Provides knowledge of previously invisible activities

HawkEye 360's technology adds another level of data to geospatial analysis

As space becomes more congested, the risk of collisions rises

ALL.SPACE's equipment can provide connectivity in remote or inhospitable locations and can improve connectivity across land, sea, and air. Its systems provide consistent connectivity in heavy seas and rough terrain, meaning that a connection is available when it really matters.

### **HawkEye 360 (9.4%) – Offering unique insights from RF data**

HawkEye 360 ([he360.com](https://he360.com)) is a US-based geospatial analytics company that operates the world's largest satellite constellation collecting radio frequency (RF) data. Many devices emit radio frequencies (for vital functions such as communication, navigation, and operation) and HawkEye 360's unique ability to identify and geolocate sources of radio frequencies from space, provides knowledge of previously-invisible activities around the world.

Using its own proprietary algorithms, the company analyses the RF data it collects, combining it with other data items to create powerful analytical products that, for example, help first responders save lives, law enforcement to halt hidden illegal activities (such as illegal fishing), and telecommunication companies to better-utilise spectrum.

Geospatial analytics is a form of computational analysis that uses geographic, spatial and location data – and increasingly, high-resolution imagery, computer vision, and artificial intelligence (AI) to extract structured data. HawkEye 360's technology adds another level of data to this model. The company is a market leader in this space; no other provider has a comparable offering.

Following the launch of a further seven satellites in April 2023, HawkEye 360 has 21 satellites in orbit, all of which are operational. It has plans to launch another 60 satellites, increasing the scale of its existing network to around four times the size that it is today. The most recent additions led to a meaningful drop of latency (delays) within the system.

HawkEye 360's customers cover six continents and include a wide range of commercial, government and international agencies. It collects a broad range of RF data and offers products that map signals of interest, create surveys of global RF spectrum usage, and provide deeper visibility of activities within maritime areas.

### **LeoLabs (5.8%) – detailed mapping of objects in low earth orbit**

LeoLabs ([leolabs.space](https://leolabs.space)) provides a highly detailed mapping service for space, using a network of ground-based antennas that are capable of detecting objects as small as 2cm as far as 1,000km away. The company, which describes itself as a leader in space safety, security, and sustainability, is transforming the way in which satellite operators, commercial enterprises and government agencies around the world launch and track missions in low earth orbit (LEO). It provides a visualisation ([click here](#) to view) of satellites, debris, and other objects that its system tracks.

LeoLabs says that there are over 14,000 orbital objects bigger than a softball, and more than 250,000 larger than a marble in LEO. Recent years have seen a proliferation of CubeSats sized 1U (10x10x10 cm) or smaller in LEO, and as this area of space becomes more congested, the risk of collisions rises. This increases the need to map the orbits of spacecraft, satellites, and space debris more accurately. Small satellites, including 1U CubeSats and smaller ones, are well-

LeoLabs is making significant progress in using AI

tracked to high accuracy by LeoLabs' network, and accuracy will increase further as new antenna sites are added.

LeoLabs' network can track manoeuvres by satellites that change their orbits frequently, as well as manoeuvres by satellites that do not. The company has also refined its technology to the point where, when a satellite shifts location, this can be identified after a single orbit, whereas previously, this took three.

The company is also making significant progress in using AI (it has over eight years of tracking data that it can use to train its algorithms) and has developed a system that can quickly identify anomalous orbital activity. LeoLabs now produces a weekly report that ranks the top 50 satellites for abnormal behaviour and has plans to develop the system further so that it will automatically follow satellites after an anomaly is detected. The system is now able to detect spacecraft manoeuvres autonomously.

## Performance

### Valuation of private companies

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All private companies in SSIT's portfolio are valued using methodologies that are in accordance with both the International Private Equity and Venture Capital Valuation (IPEV) Guidelines and consistent with IFRS. The valuation policy and valuation procedures are reviewed on a regular basis and updated where appropriate.

The valuation process focuses on enterprise value (either from a new funding round, a valuation calibration exercise, or an adjustment for milestones) and then calculates an implied equity value, based on adjustments for new debt, etc. In the event of commercial (or technical) underperformance of a portfolio company, a write-down can then also be applied, typically in increments of 25% to reduce fair value. All valuations are reviewed on a quarterly basis. Previously, these were just calibrated against the price of the last funding round, but they now use a greater number of data points to establish the fair value of a holding in private company.

### Material portfolio companies revalued using more data points

Against a backdrop of rising interest rates during 2022 and 2023, SSIT's board initiated a process to recalibrate, across an increased number of datapoints, the material portfolio companies (i) whose last funding rounds took place more than 12 months earlier, or (ii) which had experienced a significant milestone event or material under- or over-performance (each a 'recalibration event'). The aim of this was to strengthen the valuation process and preserve shareholder confidence in SSIT's NAV.

This process assesses the enterprise value following the most recent round against a composite of four elements: observable market data (where possible), recent relevant private investment transactions, public market valuations of comparable companies and the company's internal metrics and performance.

## Portfolio returns

Since its inception on 15 July 2021, SSIT has produced a negative NAV total return of 3.7%. The largest detractor from SSIT's performance has been its listed equity allocation, which (as of 31 December 2023) was down some 87% versus its initial cost, whereas the valuation of its private portfolio was up 21% versus initial cost.

**Figure 14: SSIT performance since launch**



Source: Morningstar, Marten & Co

**Figure 15: SSIT performance over periods ended 31 July 2024**

	3 months (%)	6 months (%)	1 year (%)	3 years (%)	Since launch (%)
<b>Price</b>	<b>(9.2)</b>	<b>7.0</b>	<b>33.2</b>	<b>(48.1)</b>	<b>(45.0)</b>
<b>NAV<sup>1</sup></b>	<b>0.8</b>	<b>0.8</b>	<b>2.7</b>	<b>(3.7)</b>	<b>(3.7)</b>
<b>MSCI ACWI</b>	<b>5.4</b>	<b>11.5</b>	<b>17.2</b>	<b>27.7</b>	<b>27.4</b>
<b>ARC Space Exploration and Innovation ETF</b>	<b>4.0</b>	<b>6.9</b>	<b>(2.1)</b>	<b>(25.8)</b>	<b>(25.6)</b>

Source: Morningstar, Marten & Co. Note 1) SSIT is yet to publish its NAV as at 30 June 2024, these figures are Morningstar's estimates and based on NAV as at 31 March 2024.

The team attributes much of the fall in the value of its listed holdings to fundamental issues with some stocks. In retrospect, some of these underperforming companies came to market via SPACs, often before they were sufficiently mature enough to survive investor scrutiny. The team notes that the performance of the listed portfolio is largely in line with the performance of the wider SPAC market. One of these, Arqit Quantum, is described in more detail below.

Given that SSIT is the only fully space-focused fund available to UK investors and the only one focusing on unlisted companies (and therefore representative of the true potential of the sector), benchmarking its performance can be difficult. We have included two comparators in Figure 15 however, the first being the MSCI ACWI. SSIT's NAV and share price has underperformed the MSCI ACWI since its launch, as SSIT was affected by the interest-rate selloff affecting growth equities without capitalising on the subsequent rally, which was primarily driven by the AI-related technology sector.

Given the lack of a true comparator index, one approach may be to use the ARC Space Exploration and Innovation **ETF**, an active strategy managed by a well-known investment team but investing solely in listed equities. The ETF has a concentrated portfolio of 26 stocks and a comparable market cap of c.\$210m.

SSIT's NAV returns have been superior to those of the ETF. We note that the ETF's negative long-term returns come despite the fund's holdings having a median market cap of \$16bn (investors have been favouring large caps) and exposure to companies like Amazon; an indication of how intense the headwinds facing listed space exploration stocks have been.

## Individual contributors

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As included within Figure 13, in its most recent results, for the six months ending 31 December 2023, SSIT provided a breakdown of the valuation changes of its largest unlisted holdings. We have covered most of the top contributors above. SatVu and QuadSAT, which have both generated returns of 50% or more when compared to their cost price, are described briefly below. Only two of SSIT's top 10 holdings have been revalued downward since their purchase.

### SatVu

SatVu has illustrated the perils of space exploration. The company's goal is to provide an accurate thermal mapping of the globe, providing its clients with high-resolution thermal imaging that is scalable and has uniform coverage, day or night. Thermal imaging of this quality and granular detail has a range of uses, including mapping energy efficiency and tracking changing weather patterns. The quality and range of its coverage effectively make SatVu's offering a unique service, the demand for which has led to it having the second-highest fair value gains versus cost. It would have been the highest were it not for the failure of its first operational satellite, which failed six months after coming online. Thankfully, SatVu was insured against such outcomes and has a second launch in the pipe to replace the lost satellite. However, this will delay its ability to service its pipeline of clients, with the loss in revenue being reflected in its valuation.

### QuadSat

QuadSat is a Danish company that develops novel techniques for testing and calibrating satellite antennas by using drones to mimic satellite position and movement. Accuracy is critical in a world with an increasingly crowded radio frequency spectrum. QuadSat's drones can be easily transported to the antenna location and operate anywhere in the world on antennas of all sizes.

**Figure 16: Arqit Quantum (USD)**



Source: Bloomberg

SSIT is capital-growth-focused, and dividends are unlikely

QuadSat's revaluation resulted from its March 2023 funding round, during which it raised an additional €9m.

## Arqit Quantum

There will be failures as well as successes within a portfolio such as SSIT's. One of SSIT's more disappointing investments has been a stake in Arqit Quantum, which was acquired for £26.3m through a stock swap and was listed by reversing into a SPAC. The stock soared in value to over \$38 per share but plummeted as revenues were slower to materialise than hoped. In November 2022, SSIT sold 20% of its position at an average price of \$8.48 per share.

In December 2022, Arqit abandoned plans for a space-based platform and put its partially constructed satellite up for sale. That satellite had secured a 2024 launch on Virgin Orbit, which went into bankruptcy in April 2023, owing Arqit \$10m. Arqit is persevering with a terrestrial encryption business that does not incorporate quantum encryption. Revenue for the six months ended 31 March 2024 was just \$119,000.

## Dividend

SSIT aims to produce capital growth. Its investments are in growth-stage SpaceTech companies, so it is unlikely to pay dividends. Whilst it would pay such dividends as needed to maintain its investment trust status, SSIT's revenue losses of 1.88p per share in its financial year ended 30 June 2023 and 1.94p for the prior year are a good indication that dividends are unlikely. All previous revenue losses would need to be covered by revenue earnings before SSIT could pay a dividend.

## Premium/(discount)

Over the 12 months ended 31 July 2024, SSIT's shares traded within a range of a 71.9% discount to NAV to a 24.9% discount and averaged at a 49.2% discount. On 12 August 2024, SSIT was trading at a 48.2% discount.

Having briefly traded at a premium post-IPO, SSIT's discount widened over 2022, reflecting the sentiment shift away from growth stocks that occurred as central banks began to raise interest rates in response to higher inflation. However, whilst it has narrowed significantly since as interest rates have receded, it remains very wide, which we think does not adequately reflect either the increasing maturity of SSIT's underlying holdings as revenues climb and more of them shift towards profitability or the scarcity of these assets and their longer-term growth potential. It is worth noting that valuations of many of SSIT's unlisted holdings have been supported by capital raises at higher prices than SSIT paid.

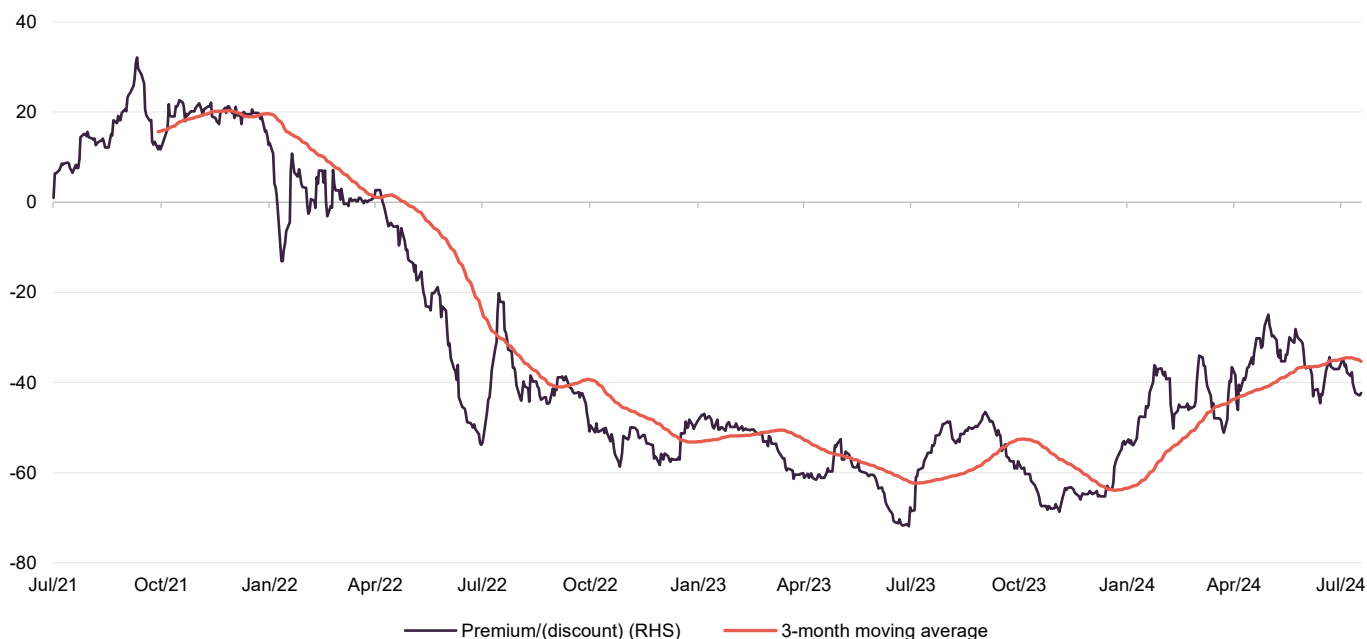
In addition, there has been a general widening of discounts across the investment companies sector which has been attributed to factors such as cost disclosure issues and consolidation of wealth managers as well as macroeconomics, which should see improvement from here.

While still volatile, SSIT's discount has started to narrow over 2024 – likely due to hopes of interest rate cuts and positive announcements from SSIT. However, the

trust still trades at a material discount, which may offer an attractive entry point for new investors.

SSIT has authorities in place to **buy back** shares, which the board may use when deemed to be in the best interests of shareholders as a whole. On 13 July 2023, the board announced its intention to use this authority, and since then it has repurchased 2.2m shares for an aggregate cost of £1.0m, with its last buyback being made on 13 September 2023.

**Figure 17: SSIT premium/(discount) from launch to end July 2024**



Source: Morningstar, Marten & Co

## Fees and costs

### Tiered management fee

Under the terms of the investment management agreement, Seraphim Space Manager LLP is entitled to a base management fee of 1.25% per annum of NAV up to £300m and 1.00% per annum of NAV above £300m, paid quarterly in advance.

### Performance fee with full catch-up

Manager required to invest 15% of the performance fee back into SSIT shares

The manager is also entitled to receive a performance fee, which is calculated annually at a rate of 15% of any increase in the NAV above an 8% hurdle. However, it is only payable where the adjusted NAV at the end of a performance period exceeds the higher of the performance hurdle and a high-water mark. The performance fee has full catch-up (so if it makes up earlier lost ground, it can still earn its full fee).

### Ongoing charges ratio: 1.89%

In addition, the investment manager is required to reinvest 15% of any performance fee paid in shares of the company (subject to the provisions of the takeover code).

For the year ended 30 June 2023, SSIT's **ongoing charges** ratio was 1.89% (2022: 1.72%).



## Capital structure

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### Simple capital structure

SSIT has a simple capital structure with one class of ordinary share in issue. Its ordinary shares have a premium main market listing on the London Stock Exchange and, as at 12 August 2024, there were 239,384,928 in issue with 2,186,344 shares held in treasury, so that there are 237,198,584 shares with voting rights.

At its IPO, SSIT issued 150m shares to those subscribing for shares through the fundraising and an additional 28.4m shares to satisfy the purchase of the trust's initial portfolio (a portfolio of 19 companies acquired from Seraphim Space Fund). SSIT made three subsequent share issuances to acquire additional assets: 7.4m shares on 10 September 2021 to acquire a stake in Spire Global, 26.2m shares on 22 September 2021 to acquire a stake in Arqit Quantum, and 27.3m shares on 20 December 2021 to acquire a stake in ICEYE Oy and D-Orbit SpA. All of these transactions were set out in SSIT's IPO prospectus.

### Gearing may be used to bridge investments

### Gearing

SSIT does not use structural gearing (borrowing) to enhance returns but is permitted to borrow up to a maximum of 10% of NAV (calculated at the time of draw down) for the purposes of bridging investments, managing its working capital requirements and efficient portfolio management. Although there is no restriction on the amount of cash that SSIT may hold, it will typically hold sufficient cash to cover follow-on investments and its working capital requirements. As of 31 March 2024, SSIT had liquid resources of 11.4%.

### Unlimited life with a five-yearly continuation vote

SSIT does not have a fixed winding-up date, but commencing at the trust's AGM in 2026, SSIT will offer shareholders the opportunity to vote on the continuation of the company as an investment trust every five years.

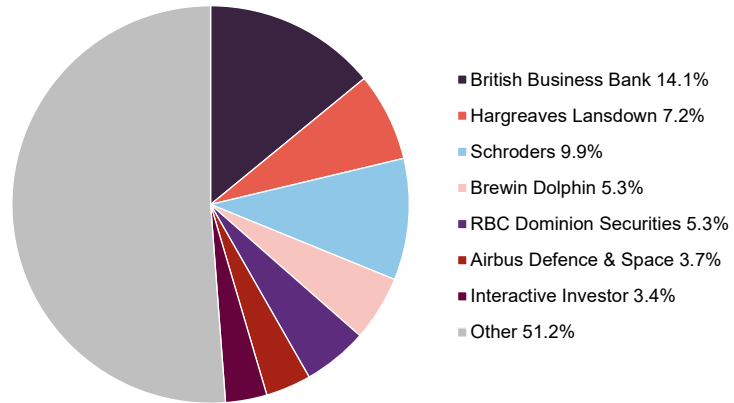
### Financial calendar

The trust's year-end is 30 June. The annual results are usually released in October (interims in March) and its AGMs are usually held in November of each year.

### Major shareholders

SSIT's premium main market listing allows the full spectrum of investors to hold its shares and so, whilst institutional holders make up the bulk of the share register, wealth managers and retail investors also feature and the trust benefits from having quite a diverse investor base.

**Figure 18: Major shareholders as at 13 August 2024**



Source: Bloomberg

## Management team

SSIT has appointed Seraphim Space (Manager) LLP as its AIFM. The Seraphim partners have worked together for the past 18 years, having honed their investment experience while working at YFM Equity Partners. Short biographies of the key personnel responsible for managing SSIT's portfolio are provided below.

### Mark Boggett (CEO and managing partner)

Mark is well-regarded within the space tech investment arena, having co-founded Seraphim Space and launched the Seraphim Space LP fund, Seraphim Space Accelerator, UK Space Tech Angels and SSIT. Previously, he was a director at YFM Equity Partners. He has also worked at Brewin Dolphin and Williams de Broe.

Mark has a BSC in Accounting and Finance and an MSc in Economics and Finance from the University of Leeds. He has been a fund representative on the boards of several SpaceTech companies, including LeoLabs, Spire Global, Arqit, and HawkEye 360.

### James Bruegger (CIO and managing partner)

James is a co-founder and CIO of Seraphim Space and has invested in companies such as Arqit, ICEYE, LeoLabs and D-Orbit and led investments in several companies that went public, including Spire Global and AST SpaceMobile. Previously, Mark worked at YFM Equity Partners and Burlington Consultants, a boutique strategy consultancy that was acquired by Deloitte & Touche. James holds a first-class degree in History from University College London. He has been a fund representative on the boards of a number of space tech companies, including ICEYE, D-Orbit, Ultrasoc, ALL.SPACE (formerly Isotropic Systems) and SatVu.

### Rob Desborough (general partner and CEO of Seraphim Space Accelerator)

Rob is general partner at Seraphim Space, heading up its early-stage investments. He is a co-founder of Seraphim Space Accelerator, which was launched in 2018,

and prior to Seraphim Space, he was an investment director at YFM Equity Partners. Rob holds a BSc (Hons) in Biomedical Sciences from the University of Glasgow and a Postgraduate Diploma (PGDip) in Information Technology Systems from the University of Strathclyde. During Rob's tenure, the Seraphim Space Accelerator has graduated 91 space tech start-ups, which have collectively raised over \$350m in co-investment of funds syndicated from 100 venture capital investors. He is a fund representative on the boards of Xona Space Systems, Altitude Angel, and other early-stage investments.

## Board

The company started life with three directors, and Angela Lane came on board in January 2022. All four directors are non-executive and independent of the manager. The company's articles of association limit the aggregate fees payable to the directors to a total of £500,000 per annum, which has a comfortable amount of headroom at the current fee levels. Other than SSIT's board, its directors do not have any other shared directorships.

All directors offer themselves for re-election annually

Board policy is that all of SSIT's board members retire and offer themselves for re-election annually. SSIT has adopted a formal policy that neither the chairman nor any other director should normally serve for more than nine years, although a director may serve for a limited time beyond that where it is in the interests of the company, shareholders or other stakeholders. As it is relatively early in the trust's life, it will be some time before there is a need to refresh the board.

All directors have personal investments in the trust

As is illustrated in Figure 19, all of SSIT's directors have personal investments in the trust, which we consider to be favourable as it helps align directors' interests with those of shareholders. One director has purchased shares during the last 12 months; Will Whitehorn purchased 10,000 shares on 21 November 2023 at 30.37p per share and 20,000 shares on 22 November 2023 at 34.55p per share. None of the directors have disposed of any shares during the last year.

Two of the three most-senior board positions are held by women.

### Board diversity

At the time of writing, the board has a 25/75 split in terms of gender identity (men/women), with two of the most senior positions (chair of the audit committee and senior independent director) held by a woman, and one (chair) held by a man.

At present, the board is entirely composed of individuals who are classified as White British or other White (including minority-White groups). However, the board strongly believes that having diversity in skills, experience, identity, and cognitive thought has significant benefits when making decisions and says that having at least one member from an ethnic minority background will be a key consideration in future appointments.

**Figure 19: Directors**

Director	Role	Date of appointment	Length of service (years)	Annual fee (£) <sup>1</sup>	Shareholding <sup>2</sup>
<b>Will Whitehorn</b>	<b>Chair</b>	<b>14/06/2021</b>	<b>3.2</b>	<b>50,000</b>	<b>100,000</b>
<b>Angela Lane</b>	<b>Chair of the audit committee</b>	<b>01/01/2022</b>	<b>2.6</b>	<b>50,000</b>	<b>47,000</b>
<b>Sue Inglis</b>	<b>Senior independent director</b>	<b>14/06/2021</b>	<b>3.2</b>	<b>50,000</b>	<b>50,000</b>
<b>Christina McComb</b>	<b>Director</b>	<b>14/06/2021</b>	<b>3.2</b>	<b>50,000</b>	<b>41,706</b>

**Source:** Seraphim Space. Notes: 1) For SSIT's financial year ended 30 June 2023. 2) Shareholdings as per most recent company announcements as at 12 August 2024.

### **Will Whitehorn (chair)**

Will was formerly a director of Virgin Group and president of Virgin Galactic until 2010, when he pursued a private equity and non-executive career. He is the president of UKSpace, the trade body that represents the space industry in the UK. Will chairs the Scottish Event Campus, which hosted COP26. In addition to these corporate roles, he has been a Fellow of the Royal Aeronautical Society since 2014 and is a member of the UK Government's Space Exploration Advisory Committee, which reports to the UK Space Agency.

Will is also chair of Good Energy Group Plc and Craneware Plc and a non-executive director of AAC Clyde Space AB.

### **Angela Lane (chair of the audit committee)**

Angela has decades of experience working with private equity-owned companies and investment companies and as the chair of audit and remuneration committees. She is a Fellow of the Institute of Chartered Accountants in England and Wales and began her career at the venture capital firm 3i Plc. She became a partner of 3i's growth capital business and oversaw the UK growth capital portfolio. Subsequently, she has held a number of positions as chair of private equity-backed businesses.

Angela is a non-executive director and chair of the audit committee of BlackRock Throgmorton Trust Plc, Pacific Horizon Investment Trust Plc and Dunedin Enterprise Investment Trust Plc.

### **Sue Inglis (senior independent director)**

Sue has a wealth of experience from more than 30 years of advising listed investment companies and financial institutions. Her executive roles included managing director of Corporate Finance in the investment companies team at Cantor Fitzgerald Europe and investment companies and financial institutions teams at Canaccord Genuity. Sue is a qualified lawyer and was a partner and head of the funds and financial services group at Shepherd & Wedderburn, a leading Scottish law firm. In 1999 she was a founding partner of Intelli Corporate Finance, an advisory boutique firm focusing on the asset management and investment company sectors, which was acquired by Canaccord Genuity in 2009.

Sue is currently the senior independent director of Baillie Gifford US Growth Trust Plc and CT Global Managed Portfolio Trust Plc, and also chairs the audit committee of CT Global Managed Portfolio Trust Plc.

### **Christina McComb (director)**

Christina has over 25 years' experience of venture capital and growth investment as a former director of 3i Plc and other venture funds. She has been a director of other investment companies, including as chair of Standard Life European Private Equity Trust Plc, from which role she retired in April 2022. She has also held a number of senior public sector roles involved in SME and growth business finance, including as senior independent director at the British Business Bank. She was awarded an OBE in the Queen's Birthday Honours 2018 for services to the economy.

Christina is also a non-executive director of Big Society Capital Ltd and trustee and chair of Investment Committee of Nesta, the UK's Innovation Agency for Social Good.



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