Seraphim Space Investment Trust

Spacetech enjoying sustained secular tailwinds

Investment trusts
Growth capital

Seraphim Space Investment Trust (SSIT) saw a 12-month share price decline of c 30%, while its NAV fell by only 7.1% in FY23 (to end-June 2023), shielded in part by the downside protection embedded in its investments via preference shares and only one down round out of 11 funding rounds completed by SSIT's portfolio companies in FY23. Moreover, NAV/share rebounded by 3.9% in Q124, driven by FX gains and fair value uplifts on the back of new funding rounds (D-Orbit's in particular). This resulted in a further widening of the discount to NAV to c 65%, which is now wider than for other listed venture capital (VC)/growth capital trusts and limited partner (LP) VC portfolios trading on the secondary market in H123. Both SSIT's holding-level and portfolio-level liquidity look solid, with end-September cash of £29.7m (13% of NAV) and an average 18-month cash runway across its material holdings.

Interview with Mark Boggett, Seraphim Space's CEO

Source: Edison Investment Research

Spacetech's lift-off moment may be now

Commercial space technology (spacetech) is gathering pace, driven by a massive decline in the cost of manufacturing and putting satellites into orbit. This is coupled with growing demand for Earth observation from space in end-markets like defence, climate change and insurance. Further drivers on the demand side include, among others, connectivity and mobility. Investors have recognised the spacetech industry's potential, with US$4.8bn in venture and growth capital poured into the industry in 9M23, according to the Seraphim Space Index. A wide range of investors have recently made forays into spacetech investments, including sovereign wealth funds and private equity investors.

A compelling pure play on the spacetech theme

SSIT offers a rare opportunity to invest in a portfolio exclusively composed of early-stage spacetech businesses (with c 97% of portfolio value now in private companies), representing a viable alternative to ETFs focused on listed large caps with only partial exposure to the theme. The executive team behind Seraphim Space (Seraphim), SSIT's investment manager, is made up of pioneers in spacetech investments and the go-to partners for both spacetech businesses seeking funding and investors searching the sector for attractive private companies to invest in. SSIT's diverse portfolio is now available at a wide discount to NAV.

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4 December 2023

Price Ord	**34.1p**
Market cap	**£80.9m**
NAV	**£228.9m**

NAV per share*	96.51p
Share discount to NAV	64.7%

*As at end-September 2023.

Yield		0.0%
Shares in issue		239.4m
Code Ord/ISIN		SSIT/GB00BKPG0138
Primary exchange		LSE
AIC sector		Capital Growth
SSIT's financial year end		30 June
52-week high/low	49.7p	26.1p
NAV high/low	105.0p	91.8p

Gearing

Cash at end-September 2023	£29.7m

Fund objective

Seraphim Space Investment Trust's objective is to generate capital growth over the long term through investment in a diversified, international portfolio of predominantly early- and growth-stage unquoted spacetech businesses with the potential to dominate globally. Spacetech businesses rely on space-based connectivity or precision, navigation and timing signals, addressing a broad range of key applications.

Bull points

- SSIT should benefit from structural long-term tailwinds.
- Downside protection from liquidity preference and anti-dilution clauses.
- Average cash runway across SSIT's material holdings of 18 months from end-September 2023.

Bear points

- Macroeconomic headwinds curbing venture capital deal activity and valuations.
- Liquidity constraints could hamper new investments.
- Early-stage companies that are yet to break even are inherently risky.

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An attractive portfolio of space businesses available at a wide discount to NAV

We consider SSIT a unique way to gain exposure to the fast-growing spacetech industry for the following reasons:

A rare pure play on the sector…

SSIT is the first and only listed vehicle giving investors access to a portfolio purely focused on spacetech through predominantly unquoted early-stage growth companies. This is in contrast to most exchange-traded fund (ETFs) with exposure to the theme, which focus on large-cap listed companies in the aerospace and defence sector and space-enabling technologies with multiple revenue streams (diluting spacetech exposure), for example Trimble, Sirius and Lockheed Martin. At the same time, SSIT's UK-listed growth capital and VC peers normally have broad exposure to tech, with only a few (if any) pure spacetech companies in their portfolios.

…and the go-to spacetech investor…

Seraphim Space is a pioneer in spacetech investments (with more than 100 investments across its public and private portfolios) that has built deep knowledge networks. Its current team offers a compelling combination of long-term private equity investment expertise with deep technical and relevant academic and commercial spacetech experience (see below for details). Moreover, Seraphim is an early mover with a reputation for sourcing opportunities and partnering with other investment groups, as well as top global multinational space companies, many of which are investors in its portfolio companies, including Airbus Defence & Space, SES, Telespazio and MDA. Seraphim Space has cultivated a very strong symbiotic network of expert contacts and co-investors to ensure good access to deal flow, comprehensive technical expertise and insight. At the same time, many investors focused on themes such as deeptech, defence, agtech or impact investing consider SSIT as the preferred co-investor given its spacetech expertise.

…with a vast deal origination network…

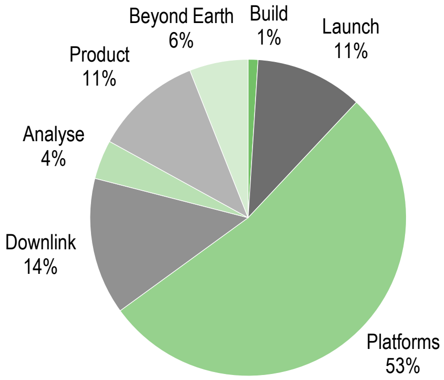
SSIT's deal origination is based on four main sources: 1) inbound enquiries (as one of the largest global spacetech investors, most seed-stage businesses approach Seraphim for funding), 2) its detailed analysis of compelling subsectors to map out the opportunity set, 3) its co-investor network, and 4) the Seraphim Space Camp and AWS Space Accelerator.

The latter are international accelerator programmes that run several times a year for up to 10 spacetech companies per cohort, for three months, which leads to them raising equity funding from other VCs (more than US$320m in capital has been raised by 91 start-ups to date). Through subsequent careful ongoing monitoring of technical and commercial progression post-graduation from these accelerators, Seraphim can cherry-pick which graduate companies to back. The accelerator programmes also put Seraphim at the heart of the spacetech ecosystem, building deepening relationships with the global investor community for co-investment and deal syndication.

…and a well-diversified portfolio in terms of subsectors

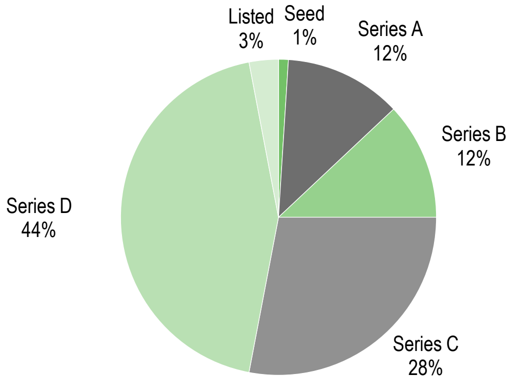
SSIT's strategy is to generate long-term returns of at least 20% pa from investing in companies that are leaders in their segment with first-mover advantage and a strong capital structure. While its current portfolio is quite concentrated (with the top 10 holdings making up c 88% of its investment portfolio value), it covers a diverse range of spacetech subsectors (see Exhibit 1), mostly exposed to the defence and climate/sustainability themes. We discuss SSIT's portfolio in more detail below.

Exhibit 1: SSIT's portfolio by subsector at end-June 2023



Source: Company data. Note: Platforms – constellations of satellites in space; Downlink – data from space to Earth in a cyber-secure manner; Analyse – artificial intelligence applied to large datasets from space; Product – space datasets fused with terrestrial data targeted at verticals like construction, agriculture and oil & gas; Beyond Earth – activity in space; Build – satellite construction/manufacturing/components; Launch – rockets.

Exhibit 2: SSIT's portfolio by last funding round at end-June 2023



Source: Company data.

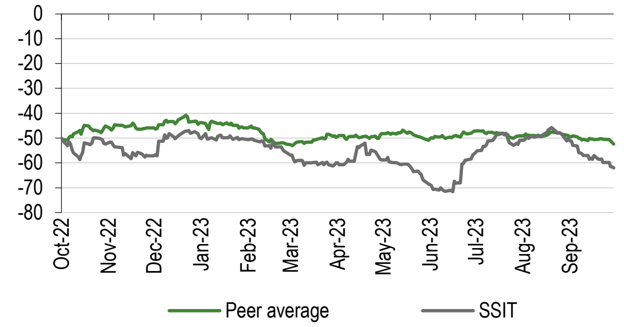
SSIT's shares now available at a wide discount to NAV

A tough macro environment coupled with the normalisation of interest rates (weighing on long-duration assets such as SSIT's portfolio companies) resulted in a 7.1% NAV decline in FY23, translating into a similar NAV fall since inception (SSIT's NAV at end-June 2023 was £0.93 versus the IPO price of £1.00). The downward revaluations would likely be more pronounced were it not for the downside protections (liquidation preferences and anti-dilution protection) embedded in SSIT's investments made via preference shares. Subsequently, SSIT's NAV/share rebounded by 3.9% in Q124, driven by FX gains and fair value uplifts on the back of successful funding rounds completed during or post period-end, most notably in the case of D-Orbit, but also LeoLabs and HawkEye 360.

Meanwhile, SSIT's share price declined by c 49% during FY23, although it rebounded by c 26% after the reporting date. Nevertheless, SSIT's shares currently trade at a wide c 65% discount to its end-September 2023 NAV. SSIT launched a buyback programme on 13 July 2023, spending c £1.0m on repurchasing c 2.2m shares (0.9% of shares outstanding on 12 July 2023, now held in treasury). This helped to narrow the discount temporarily from c 70% to 46% by mid-September, but since then the discount has started to widen again. Wide discounts to NAV are a common characteristic of the listed PE/VC sector at present, although we note that SSIT's current discount is wider than the c 47% average for other UK-listed VC and growth capital investment companies (see Exhibit 3). We also note that it is wider than the average 31% discount in secondary market transactions for LP VC portfolios in H123, according to the latest Global Secondary Market Review by Jefferies.

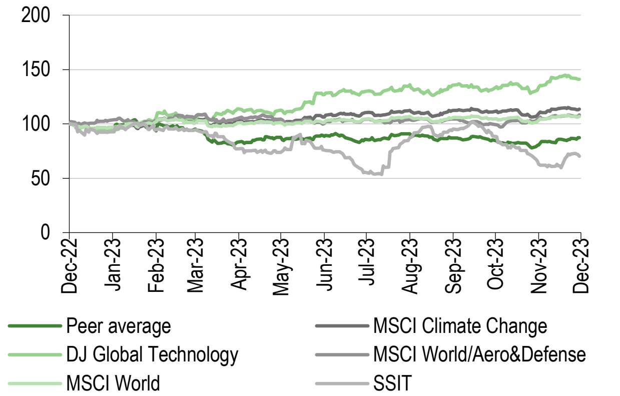
The discounts of listed VC/growth capital funds likely reflect investor anxiety related to: 1) the valuations of early-stage private companies amid interest rate normalisation and macroeconomic headwinds, 2) the cash runways of portfolio companies, and 3) the amount of holding-level liquidity required to continue participating in subsequent funding rounds. We discuss why we believe SSIT's share price may have overreacted to these risks below.

Exhibit 3: Discount to NAV over the last 12 months – SSIT versus peers



Source: Refinitiv, company data. Note: Peers include Molten Ventures, IP Group, Augmentum Fintech, Chrysalis Investments, Schroder British Opportunities and Schroder UK Public Private Trust.

Exhibit 4: Share price performance – SSIT versus selected indices and peers



Source: Refinitiv, company data. Note: Peers include Molten Ventures, IP Group, Augmentum Fintech, Chrysalis Investments, Schroder British Opportunities and Schroder UK Public Private Trust.

Lift-off phase for the global spacetech industry

Small satellites: Lighter, cheaper and easier to deploy

Seraphim Space is seeking high-growth businesses that are addressing very large market opportunities that are likely to persist for many decades, providing a long runway of growth and powerful long-term secular tailwinds. In this context, we note that the commercial spacetech industry began to take off in recent years because of the ability to use much smaller, lighter and cheaper satellites, which can be launched into space more quickly (therefore justifying a shorter service life) and at a lower cost, see Exhibit 5. The lower cost of manufacturing satellites has been supported by, among other things, the use of off-the-shelf components from other industries (consumer electronics and automotive in particular). Meanwhile, the average cost of launching satellites into space has come down from c US$83,000 to c US$1,500 per kilogram, primarily due to the introduction of reusable rockets by SpaceX, as well as 3D printing of rocket components

Exhibit 5: Currently launched small satellites versus previous large satellites

	Previous	Current
Launched by	Governments only	Also private companies of different sizes
Orbit	Geostationary orbit	Low Earth orbit (LEO) – altitude of less than 1,000km
Size	Car- or bus-sized	Shoe box- or microwave-sized
Weight	Several tonnes	5–150kg
Lead time to launch	Years	Months
Average service life	c 15 years	c 5 years
Manufacturing cost per unit	Several hundred million dollars or more	A few hundred thousand dollars to a few million dollars
Cost of launch in US$ per kg	10,000–100,000	Less than 5,000, often c 1,000

Source: Company data

The above drivers have led to the development of the small satellite segment suitable for deployment in low Earth orbit (LEO) constellations along with a variety of supporting technologies to provide the backbone infrastructure of such networks, both on the ground and in space. This development will spawn a considerable increase in the satellite 'fleet', with more than 200 individual companies expected to launch 100,000 satellites into space over the next 10 years, according to Seraphim (compared to c 16,000 satellites launched so far since Sputnik in the early 1960s).

Spacetech applications: Not just a toy for billionaires

Spacetech use cases span a wide range of industries and some of the most important end-markets include defence, sustainability, insurance, connectivity and mobility:

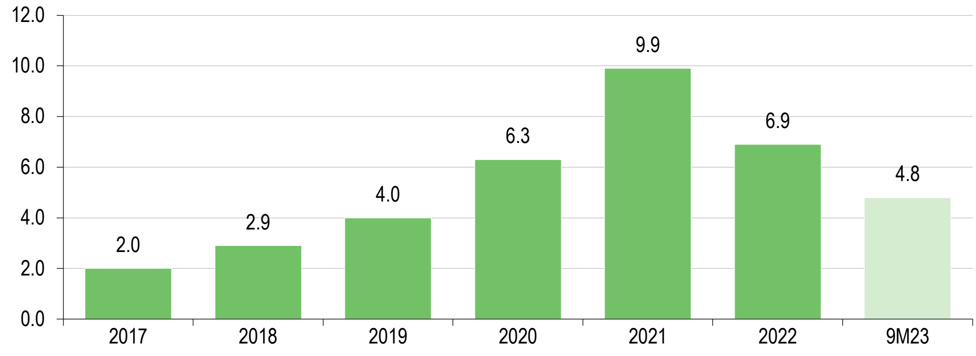
- **Defence:** more granular and frequent Earth observation from satellites has clear applications in the defence industry, with the war in Ukraine and Israel, as well as US-China rivalry triggering a surge in government budgets for defence. Earth observation from space can also help hold governments to account for their actions (eg documenting Russia's war crimes in Ukraine).
- **Sustainability:** spacetech has an important role to play in climate change mitigation, for instance by 1) pinpointing areas of concern regarding building energy efficiency or escaping gases from industrial or landfill sites, 2) ensuring that renewable energy infrastructure is used to the best effect via the modelling of sunlight and cloud cover to optimise solar panel installations, 3) uncovering better areas to tap into renewable energy sources, and 4) helping corporates with their environmental reporting. Moreover, spacetech has the potential to address issues like food security (through crop yield monitoring and improvement, as well as farm-to-fork supply chain inspection), biodiversity security (eg helping to combat illegal fishing and poaching for endangered species), deforestation and wildfire threats.
- **Insurance:** Earth observation from space also assists the insurance sector in quicker claim reviews and disbursements (although Seraphim acknowledges that adoption of spacetech by the insurance industry is somewhat slower than anticipated).
- **Connectivity:** satellite constellations could be an alternative to traditional internet access infrastructure, which may be uneconomical or unviable to install in some remote regions. A United Nations study found that 52% of the world's population still lacks access to the internet, with 90% of those people in developing countries. Better connectivity from space could help improve access to healthcare and stronger GDP growth in the world's developing regions.
- **Mobility:** GPS data from space provides positioning, time and navigation for uses such as in autonomous driverless cars, flying taxis and drone deliveries, which will contribute to less traffic on roads, reduced congestion and lower emissions.

In its 2022 spacetech report, Citigroup estimated a 2020–40 market CAGR for Earth observation, broadband and mobile connectivity of 10.0%, 8.6% and 7.0%, respectively. Over the longer term, as the cost of sending a kilo into space continues to fall (Citigroup expects US$100 by 2040), demand for next-generation space commercialisation should escalate, for uses such as manufacturing in space, datacentres in space (reducing the sector's carbon footprint), in-orbit agriculture and solar farms in space, providing clean energy to the planet.

Spacetech investments down versus 2021 peak, but high investor interest sustained

Across the broader market, the Seraphim Space Index indicated global VC/growth funding of US$4.8bn year-to-date in 2023, down from US$6.9bn in 2022 and US$9.9bn in 2021, see Exhibit 6. However, the above comparison is distorted by large single transactions (eg SpaceX fund-raising totalling US$1.5bn in 2021 and Sierra Space's US$1.4bn Series A round in November 2021). Moreover, deal activity seems to be rebounding from the lows of Q322/Q422 and Seraphim highlighted that spacetech has remained resilient versus the broader VC market in recent quarters. Interestingly, the two largest funding rounds in Q323 were carried out by companies developing commercial space stations (Axiom Space and Sierra Space). These two transactions (Series C and B rounds, respectively), as well as Mapbox's US$280m Series E round, indicate that there has been some uptick in growth-stage rounds in Q323.

Exhibit 6: VC/growth capital investments in the global spacetech sector (US$bn)



Source: Seraphim Space Index

Importantly, there is a wide variety of investors entering or ramping up their exposure to the spacetech industry. This is for instance illustrated by the fact that funds and accounts managed by BlackRock led HawkEye 360's recent US$58m series D-1 funding round in July 2023. HawkEye 360 operates a satellite constellation collecting radio frequency signals (mostly for the defence and maritime sectors) and is one of SSIT's portfolio companies, see below. Sovereign wealth funds are also increasingly entering the space, according to Seraphim. Moreover, the vast majority of the syndicated funding rounds closed by SSIT's portfolio companies now include the participation of a climate/sustainability fund. Seraphim Space also notes the activity of private equity investors in the spacetech industry, with Advent's acquisition of Maxar and KKR's take-private offer for OHB.

Portfolio potential yet to convert into exits

More than 50% of SSIT's portfolio value (see Exhibit 9) at end-September 2023 was represented by companies operating their own satellite constellations (referred to as 'platforms'). This includes four of SSIT's top 10 holdings: **ICEYE** and **HawkEye 360** (which have so far deployed 21 satellites each), as well as **Satellite Vu** (which successfully deployed its first satellite with infrared capabilities in June 2023) and **Tomorrow.io** (which successfully launched the first two satellites in its planned weather radar constellation in June 2023), see Exhibit 9.

Several of SSIT's holdings do not operate their own constellations, but provide a product based on a combination of datasets obtained from third-party satellites and terrestrial data and offer these to specific sectors (eg agriculture, construction or oil & gas). For instance, **Altitude Angel** (c 3.2% of total portfolio value) is developing a cloud-based automated air traffic control platform for drones and flying taxis. Another business in the 'product' subsector is **LeoLabs** (6.8% of portfolio value), which relies not on satellite data but on its network of ground-based antennas (it currently has six across the globe) to provide a mapping service (the Google maps of LEO), which allows it to assess, for example, the risk of space objects such as satellites colliding or being hit by space debris. SSIT also invests in companies applying AI to datasets from space, for example **PlanetWatchers** (2.5% of portfolio value), which uses radar imagery for crop monitoring, insurance and insights for the insurance sector.

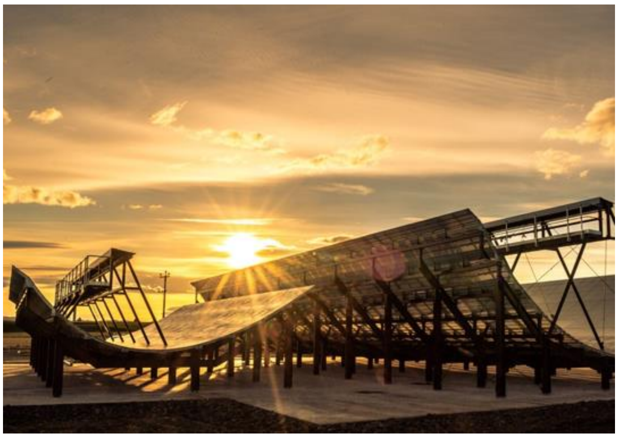
Some of SSIT's portfolio companies provide in-orbit services, with two major holdings in this respect being **D-Orbit** (13.4% of portfolio value) and **Astroscale** (5.1%). D-Orbit is a market leader in space logistics, including 'last-mile delivery' and orbital transportation of satellites into a standard parking orbit or their final operational spot. The company has already completed 12 successful orbital transportation missions, with 92 satellites deployed into orbit (far beyond what any of its competitors has managed to achieve to date). It is currently developing other services, such as mission control as a service, space waste management, in-orbit servicing and space cloud computing. Astroscale offers in-orbit services such as satellite monitoring, refuelling, upgrading, repairing and disposal (ie removal of end-of-life satellites).

SSIT also has exposure to technologies facilitating the secure transfer of data from space to Earth ('downlink'), most notably through **ALL.SPACE** (c 12.5% of gross portfolio value), which develops an antenna capable of connecting to any satellite in any constellation and orbit. It has recently started first product deliveries to clients. Finally, SSIT is exploring the 'beyond Earth' theme, with the latest example being its investment in **Voyager**, which entered into a joint venture with Airbus to build and operate Starlab, a commercial successor to the International Space Station. We note that SSIT does not have any meaningful exposure to the more commoditised subsegment of rocket launches.

Exhibit 7: Orbit's orbital transfer vehicle

Source: D-Orbit

Exhibit 8: LeoLabs' ground-based antenna



Source: LeoLabs

Exhibit 9: Summary of SSIT's portfolio at end-September 2023

Company name	Subsector	Long-term TAM* in US$bn	Fair value £m)	% of portfolio value
ICEYE	Platform/Earth observation	10+	47.4	23.7%
D-Orbit	Launch/in-orbit services	1-5	26.8	13.4%
ALL.SPACE	Downlink/ground terminals	10+	25.0	12.5%
HawkEye 360	Platform/Earth observation	10+	21.8	10.9%
Satellite Vu	Platform/Earth observation	1-5	14.7	7.4%
LeoLabs	Product/data platforms	1-5	13.6	6.8%
Astroscale	Beyond Earth/in-orbit services	1-5	10.2	5.1%
Altitude Angel	Product/data platforms	10+	6.4	3.2%
PlanetWatchers	Analyse/data analytics	5-10	5.0	2.5%
Tomorrow.io	Platform/data platforms	30+	4.1	2.1%
Top 10	**-**		**175.0**	**87.5%**
Other investments	-		24.8	12.5%
Total portfolio value	**-**		**199.9**	**100.0%**
Cash	-		29.7	-
Performance fee provision	-		0.0	-
Net current assets/(liabilities)	-		(0.7)	-
NAV	**-**		**228.9**	**-**

Source: Company data. Note: *TAM, long-term total addressable market estimated by Seraphim.

Promising growth in revenues and bookings across SSIT's major holdings

The materialisation of the secular spacetech themes discussed above is illustrated by the last 12-month growth in revenue and bookings (ie contracted future revenues) across SSIT's top 10 holdings of 34x% and 199% to end-June 2023, respectively (after the growth of private companies in SSIT's top 10 holdings of 51% and 71% y-o-y to end-June 2022, respectively). This was driven by contracts signed across different customers, including large corporates, governments and international space agencies. Some of SSIT's more mature holdings already generate significant revenue. For example ICEYE (its largest holding by fair value) is aiming for a US$100m revenue milestone by the end of 2023. SSIT's manager believes that some of its main portfolio holdings may be acquired by a trade buyer in the coming years, especially businesses operating in the defence sector given its strong development amid heightened global security risks.

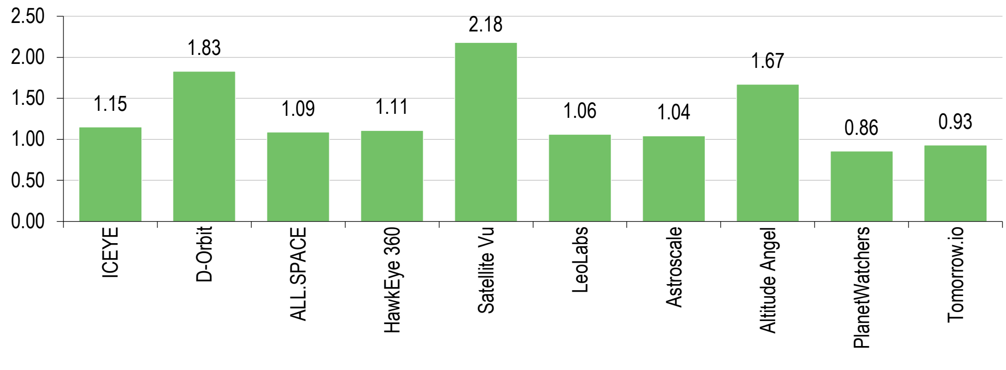
No full exits in SSIT's portfolio for now

For now, the above-mentioned operational progress of SSIT's portfolio is yet to translate into successful investment realisations. In fact, SSIT's manager would prefer that these companies were not acquired to allow them to realise their revenue growth potential in the coming years (which the manager believes could achieve US$1.0bn+ in annual sales). Since 2016, only one of Seraphim Space's investments has been exited through a trade sale: UltraSoC was acquired by Siemens (in June 2020, ie before SSIT was launched), having delivered an internal rate of return (IRR) of 80%. Given SSIT's short history, it has not made any realisations from its portfolio yet and the portfolio was held at close to its investment cost (0.99x) at end-June 2023.

Private portfolio MOIC at 1.19x, listed holdings at 0.13x

We note that this multiple of cost is somewhat distorted by the negative impact from three portfolio companies, which were listed via special purpose acquisition company (SPAC) mergers in 2021: AST SpaceMobile, Arqit Quantum and Spire Global (D-Orbit abandoned its planned listing via a SPAC merger in 2022). SSIT acquired the holdings in these three companies from Seraphim Space's private fund in 2021 following SSIT's IPO at a price corresponding to the share prices of these businesses at that time. Unfortunately, all experienced significant share price de-ratings following their SPAC mergers, with Arqit and Spire Global down more than 90% and AST SpaceMobile down c 50%. We note that Arqit and AST SpaceMobile raised additional funding during the 12 months to end-June 2023 at a discount to their respective share prices prior to the fund-raisings, adding to the pressure on their public valuations. As a result of the price de-rating, as well as SSIT's £3.3m partial realisation from selling down shares in Arqit during FY23, SSIT's listed holdings accounted for just 2% of NAV (3% of portfolio fair value) and were held at 0.13x cost at end-June 2023. In contrast, SSIT's private portfolio was valued at 1.19x cost at end-June 2023, with only two out of its top 10 holdings held slightly below cost: PlanetWatchers (0.86x) and Tomorrow.io (0.93x), see Exhibit 10. Total portfolio MOIC at end-September 2023 was 1.03x.

Exhibit 10: Multiple on invested capital (MOIC)* of SSIT's top10 holdings at end-June 2023

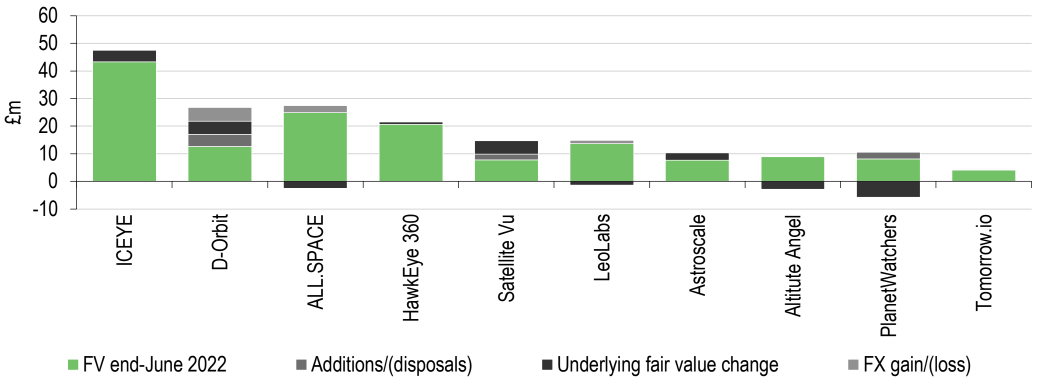


Source: Company data; Note: *Defined as the remaining unrealised fair value divided by the revised cost of investment after accounting for partial realisations.

SSIT's current market cap reflects a small part of its end-September portfolio value

While the valuations of early-stage private companies have been affected by recent macroeconomic developments, we note that of the 11 funding rounds completed by SSIT's existing private portfolio companies in the 12 months to end-June 2023, seven were carried out above the valuations in the prior round, while only one was a down round, one was a flat round and the remaining two were in the form of unpriced convertible loan notes. Moreover, we note that, amid the volatility in equity valuations in 2022, SSIT's board initiated a valuation recalibration process for material portfolio companies, which 1) completed the last funding round more than 12 months ago, 2) recently reached significant operating milestones or 3) exhibited considerable underperformance or overperformance versus their annual plans. This process was already in place before the preparation of the H123 (end-December 2022) valuations and will be repeated every quarter until the above private companies complete a new funding round. As a result, 90% of SSIT's portfolio by fair value at end-June 2023 (last available data) was based on an enterprise value that had been recalibrated in the last three months, suggesting that SSIT's portfolio valuations may be largely up to date. We calculate that the underlying fair value of SSIT's top 10 holdings at end-June 2023 was up c 3% in aggregate in FY23 (although this was fully offset by FX headwinds), with four top 10 holdings marked down and five written up, see Exhibit 11.

Exhibit 11: Summary of fair value changes across SSIT's top 10 holdings at end-June 2023



Source: Company data. Note: Does not account for the funding rounds closed post end-June 2023.

Finally, we note that SSIT's holding-level cash stood at £29.7m at end-September 2023 (vs c £44m at end-September 2022) and represented c 13% of SSIT's NAV. Based on the company's end-September 2023 portfolio valuations and cash level, we calculate that SSIT's current share price implies a c 74% discount to the fair value of its portfolio excluding cash. It is also instructive to examine the downside protections highlighted above. SSIT's manager estimates that a 50% enterprise value reduction across its top 10 holdings (a degree of de-rating that it does not expect) would result in a c 25% reduction in SSIT's NAV from the end-June 2023 level to 70p, still around twice the current share price.

Average cash runway of 18 months across material holdings

We acknowledge that in the above calculation of the implied discount to SSIT's portfolio, we account for cash in full at par, which may not fully capture the need to provide funding to those holdings that are more reliant on funding from SSIT. SSIT plans to earmark two-thirds of its current cash (after adjusting for ongoing expenses over the next two years) for follow-on investments and one-third for new investments and share buybacks.

SSIT's portfolio companies raised more than US$360m in FY23, most of which was led by new external investors. SSIT participated in two-thirds of the rounds closed in FY23, making £12.2m of follow-on investments into its existing top 10 holdings (eg D-Orbit, Satellite Vu, PlanetWatchers) and a further £3.2m in five existing early-stage companies. It also spent £4.9m on new investments. This includes c £2.1m deployed in July 2022 in the Series B round of Voyager, a company developing Starlab (in partnership with Airbus Defence and Space), a free-flying space station providing facilities to host public and private astronauts and forming critical infrastructure for support, R&D and manufacturing in space. Furthermore, SSIT invested £2.1m in August 2022 in the Series D round of Taranis, an agriculture-focused artificial intelligence business that uses Earth observation data (satellite and drone imagery) to optimise crop yields and increase global food supply. The remaining amount includes £0.7m spent on four new investments in early-stage companies (sourced through Seraphim's accelerator programmes). In Q124, SSIT spent a further £4.1m, including a follow-on investment into ALL.SPACE (£2.8m) and two early-stage businesses (£0.5m), as well as two new early-stage investments (£0.9m).

Fund profile

SSIT was listed on the Main Market of the London Stock Exchange on 14 July 2021 after raising £150m in an IPO. Before setting up an investment trust, the managers ran the portfolio as the private Seraphim Space LP Fund. After the IPO and before the end of 2021, SSIT acquired Seraphim Space LP fund's 19 holdings.

SSIT invests throughout the life cycle at seed, Series A to D, pre-IPO and IPO stages and will take minority stakes, although it has identified the B to D series rounds as its sweet spot. At this stage, the companies in which SSIT invests have ironed out technical risks and demonstrated that their product has a place in the market. At Series C and beyond, companies are establishing market leadership potential. Seraphim Space typically utilises preference shares, convertible loan notes and ordinary shares to access holdings rather than debt instruments. It will make follow-on investments at subsequent funding rounds, subject to a disciplined review of the milestones achieved by the underlying business. As a minority investor, Seraphim Space will potentially accept some dilution of a holding in subsequent rounds if the valuation is too high, milestones are not reached or to prioritise cash preservation at holding level. Syndication of investments and the financial capability of co-investors is a key consideration. Seraphim Space does not invest alone, preferring to invest alongside well capitalised investors.

Fund manager: Seraphim Space

SSIT's investment manager is Seraphim Space LLP, an established private equity operator specialising in spacetech. Seraphim Space has co-invested and collaborated with more than 20 high-profile upstream industry participants such as Airbus Defence and Space and successfully managed the private Seraphim Space LP Fund since 2016, which returned an annualised IRR of 49% from launch to end December 2021, with the majority of its holdings seeding SSIT in July 2021. It is also a prominent publisher of research and the quarterly Seraphim Space Index, which monitors in-depth trends in global private investment within the space domain.

Seraphim's executive investment team comprises experienced investors in and developers of private businesses. It consists of Mark Boggett (CEO and managing partner), James Bruegger (CIO and managing partner), Rob Desborough (managing partner) and Sarah Shackleton (COO). Before founding Seraphim Space, Mark, James and Rob had previously worked together at YFM Equity Partners since 2006 investing in small-cap technology start-ups and early-stage companies. Together with the wider investment team at Seraphim Space, they filter the 50 prospective deals that typically come across the desk each month.

The wider team at Seraphim Space (including the accelerator business) has 23 members, who have a broad range of backgrounds including aerospace, aeronautical and astronautical engineering backgrounds (for example Lewis Jones). Moreover, its team members have extensive industry experience, such as Andre Ronsoehr, who worked for almost a decade at Virgin Management where he co-led the seed investment in One Web in 2015 and helped Virgin Group manage its investment in Virgin Galactic and Virgin Orbit, and Maureen Haverty, who was COO at Apollo Fusion and senior director of corporate development at the Nasdaq-listed rocket company Astra.

The high-calibre Investment Advisory Committee is an integral part of the investment process and consists of three experienced entrepreneurs. Candace Johnson and Matt O'Connell are veterans of the industry and Ann Winblad has spent her career in VC. O'Connell is a thought leader in the geospatial intelligence industry. In 2006 he founded GeoEye, which was a global provider of satellite imagery and digital mapping subsequently sold for more than US$1bn. Winblad is a managing director of Hummer Winblad Venture Partners and is a well-known and respected software industry entrepreneur and technology pioneer who has been involved with more than 160 enterprise software company launches.

Approach to ESG

Seraphim Space is a signatory of the UN Principles for Responsible Investment and regards ESG factors as an absolute bedrock of the development in spacetech. Its manager believes that space has a unique role to play in addressing the climate crisis and, more broadly, driving and meeting the UN's Sustainable Development Goals (it believes that its portfolio as a whole addresses all sustainable development goals). Each of SSIT's private fund holdings addresses at least two of the sustainable development goals and many address multiple goals.

In terms of ESG integration in Seraphim's investment process, we note that the manager recently launched an ESG tool to objectively examine all portfolio companies (as well as potential new investments) in a consistent way and evaluate them in the context of major ESG risks, most notably weaponry and human rights abuse. It started collecting ESG metrics such as carbon emissions, job creation and diversity from calendar year 2022, and gathers qualitative information on several further ESG aspects. As at end-June 2023, 95% of its portfolio provided the data, with the remaining 5% mostly comprising listed holdings or private companies where SSIT does not have information rights. Seraphim puts emphasis on fair use policies for so-called dual-use technologies, ie those that can be used in both the commercial and government sectors (including military applications). It rejects companies whose technology is used in offensive weapons. Moreover, it aims at holding a portfolio of companies that address sustainability issues in space, for example debris removal.

Fees and charges

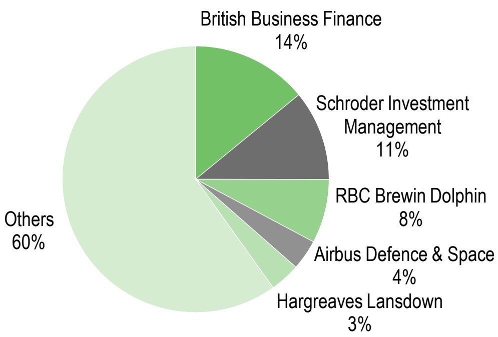
Seraphim Space is entitled to a management fee of 1.25% pa of NAV up to £300m and 1.00% pa of NAV above £300m (the end-September 2023 NAV was £228.9m), payable quarterly in advance. It is also entitled to a performance fee of 15% over an 8% hurdle, with full catch-up and subject to an absolute high-water mark. The performance fee is payable in cash, with 15% being reinvested by

Seraphim Space subscribing for new SSIT shares (if they are trading at a premium) or buying shares in the market (if they are trading at a discount). The fee is only payable if covered by realised profits and is otherwise accrued. The management fee is in line with private equity peers, most of which also have some form of performance fee.

Capital structure

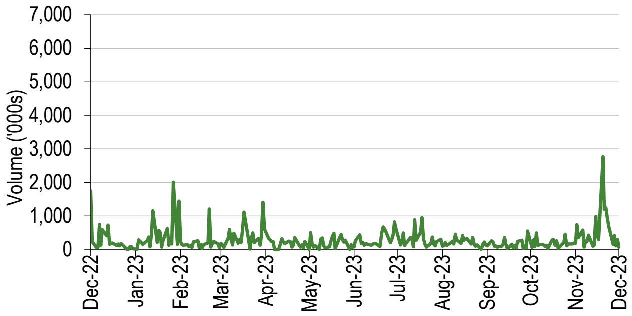
SSIT was launched via an initial public offering in July 2021 and is an investment company on the premium segment of the London Stock Exchange. There is one class of ordinary share with 239.4m in issue, of which c 2.2m are currently held in treasury. The company has no fixed life, but at the 2026 AGM there will be a continuation vote and at every AGM five years thereafter.

Exhibit 12: Major shareholders



Source: Refinitiv. Note: As at 21 November 2023.

Exhibit 13: Average daily volume



Source: Refinitiv. Note: As at 4 December 2023.

Board

The board of four is chaired by Will Whitehorn, who has technical expertise that is complemented by three other non-executive directors with extensive experience in relevant sectors. Will was formerly a director of Virgin Group and president of Virgin Galactic until 2010. He has since 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. He has been a fellow of the Royal Aeronautical Society since 2013.

Sue Inglis has more than 30 years' experience advising listed investment companies and financial institutions including roles as managing director – corporate finance at Cantor Fitzgerald and Canaccord Genuity. Christina McComb has more than 25 years' experience of venture capital investment, as a former director of 3i and other venture funds. She has also held a number of senior public sector roles, including a non-executive role at the British Business Bank and advising the government on initiatives to support access to finance in UK SMEs. Angela Lane has decades of experience working with private equity owned companies. She began her career at venture capital firm 3i and became a partner of 3i's growth capital business, overseeing the UK growth capital portfolio. Subsequently, she has held a number of positions as chair of private equity-backed businesses.

Exhibit 14: SSIT's board of directors

Board member	Date of appointment	Remuneration in FY23	Shareholdings at end-FY23
Will Whitehorn	14 June 2021	£50,000	100,000
Sue Inglis	14 June 2021	£50,000	50,000
Christina McComb	14 June 2021	£50,000	41,706
Angela Lane	1 January 2022	£50,000	47,000

Source: Company data

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