GA-Courtenay Special Situations Fund

GA-Courtenay Special Situations Fund has been built to deliver rewarding absolute returns through leveraged investment in dominant, future-facing businesses concurrent with market de-correlation by deploying a positive-carry hedging structure

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Green Ash Partners Investment Management Ltd Authorised and Regulated by the Financial Conduct Authority www.greenash-partners-courtenay.com

A message from the fund manager, Adrian Courtenay

"Exceptional performance is ultimately a function of calibrated courage.

Learning must be pushed to its limits. But beyond that point the fund manager must accept that they are equipped for independent judgment — and stand alone, not in interpreting the past, but in anticipating the future.

From that foundation follows the only rational outcome: the willingness to allocate with conviction and remain steadfast through volatility."

Adrian Courtenay, Managing Director and Head of Special Situations Strategy

Fund manager bio

Fund manager bio

2023 – present:	Green Ash Partners, GA-Courtenay Special Situations Fund
2016 – 2023:	Odey Asset Management (Special Situations Fund launches 2019)
2014 – 2016:	D.E. Shaw & Co, Vice President, Special Situations Group
2000 – 2012:	Tisbury Capital, Fortelus Capital (both special situations hedge funds)
1998 – 2000:	Oxford University (Scholar, 1st class MA, Oriel College)

Key strengths

- Wide-ranging experience in situation assessment and relationship building across global developed markets
- Advanced search and history proprietary systems accelerate situation discovery, analysis and risk management
- Extensive due diligence competency through deep dive research
- Demonstrated ability to accrete situation economics by activist engagement
- Published author, *The Super Organisation Secret (2025),* industry-recognised[1]

1. See, Orbis Investment Management, President's Letter 2025 [link]

Fund background

- *Mission: strong performance paired with strong protection against market dislocations*
- *Founded and seeded by fund manager Adrian Courtenay in October 2019 at Odey Asset Management*
- *Annualised net return since inception 12.0%*
- *Strong risk metrics: low equity correlation R^2 of 0.10, strong Sortino ratio, defensive in market stress*
- *AUM $36m, positioned for growth*
- *GA-Courtenay is a daily dealing Irish domiciled UCITS fund with GBP, EUR, CHF and USD share classes*
- *Administrator: US Bank*
- *Auditor: Deloitte*
- *Custodian: European Deposit Bank*

Fund strategy

- *Research-intensive, deep dive approach to stock selection*
- *The fund targets dominant growth businesses, including both breakthrough companies and high-quality compounders*
- *Concentrated positioning (within UCITS limits)*
- *Long equity book modestly leveraged*
- *Market risk is significantly reduced by permanent maintenance of S&P500 put options holding*
- *Advantaged hedge structure designed to achieve positive carry – incorporating merger arbitrage yield funding S&P500 put option protection*
- *The outcome: the fund's leverage amplifies our unitholders' exposure to dominant growth businesses concurrently with the positive carry hedge maintaining strong and cost-efficient defences against market dislocation risk.*

Manager background

- *More than 20 years of hedge fund experience, including Special Situations Group at D. E. Shaw & Co, with strategy refined through multiple market cycles*

Source: Performance figures and risk metrics are for USD I class

Net performance since inception

Since inception the GA-Courtenay Special Situations (USD I class) has returned 12.0% net annualised at low correlation to the market at large

GA-Courtenay Special Situations Fund (USD I) Period Net Returns

Price at 8-Apr-26	Month to date	Year to date	Annualised since inception (%)
$207.73	4.4%	3.2%	12.0%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2026	4.0	8.0	-12.1	4.4									3.2
2025	0.5	-1.6	-0.2	0.9	6.5	2.4	-3.5	-1.7	-0.2	0.1	-2.6	6.3	6.5
2024	1.5	1.5	0.7	-2.6	1.6	2.2	0.6	-0.7	0.1	0.6	-0.6	0.2	5.0
2023	7.6	-3.2	-5.4	0.6	-6.6	-4.1	1.0	-2.5	-2.4	-2.0	23.2	3.0	6.4
2022	-1.2	2.0	2.3	-3.1	-6.7	-6.1	1.5	7.7	1.0	-9.0	-0.2	-0.5	-12.8
2021	7.7	4.2	-3.2	-0.3	0.5	-4.7	-1.9	2.5	3.0	17.6	-2.1	1.6	24.4
2020	8.4	-2.5	-13.2	6.1	8.7	20.5	5.6	-5.1	5.7	-4.0	-2.7	13.2	42.8
2019										0.6	4.0	4.4	9.1

Note: Inception 17-Oct-2019; Performance figures are for share class USD I = the fund's base currency.
From July 2023 to June 2025 the fund's financing agreements and derivative protection were withdrawn following disruption to its prior house Odey Asset Management; in this interim period low gross exposure limited the fund's deployments whilst remaining consistent to its absolute return mandate. From July 2025 all financing agreements and derivative protection were re-gained.

Source: GA-Courtenay USD I class. Fund performance statistics are updated daily on www.greenash-partners-courtenay.com
Performance is presented net of 0.75% management fee and 20% performance fee

Portfolio design: performance orientated with high embedded protections

Equity book leverage: Long equity book operations possess the freedom to be operated at up to 1.3-1.4x leverage, leading to amplification in equity value progression.

Breakthrough companies ~ 50% of NAV

Esoteric holdings	Value $m	51.6% of NAV
Filtronic plc	3.53	9.94%
Echostar (core asset: SpaceX equity)	3.22	9.06%
Kraken Robotics Inc.	2.37	6.67%
ImmunityBio, Inc.	2.32	6.54%
Bloom Energy Corporation	1.50	4.24%
nLIGHT, Inc.	1.41	3.96%
Tesla, Inc.	1.35	3.80%
Rocket Lab Corporation	1.31	3.70%
Haivision Systems Inc.	1.29	3.63%

Breakthrough companies: opportunities are selected for higher return potential, acceptable asymmetry, whilst quality filters are maintained in relation to business dominance and conservative financing.

High quality compounders ~ 75% of NAV

High quality compounders	Value $m	73.7% of NAV
Ferrovial SE	1.68	4.74%
Aena S.M.E., S.A.	1.67	4.70%
Safran SA	1.66	4.68%
ASML Holding N.V.	1.63	4.61%
Formula One Group	1.55	4.38%
Energy Transfer LP	1.51	4.24%
The St. Joe Company	1.48	4.16%
Enterprise Products Partners L.P.	1.47	4.15%
Pershing Square Holdings, Ltd.	1.44	4.05%
General Electric Company	1.43	4.03%
NovaGold Resources Inc.	1.39	3.92%
Clean Harbors, Inc.	1.35	3.81%
Jungfraubahn Holding AG	1.28	3.62%
Taiwan Semiconductor Manufacturing Compar	1.26	3.54%
Flughafen Zürich AG	1.17	3.29%
Fanuc Corporation	1.10	3.10%
Fraport AG	1.07	3.02%
Airbus SE	1.03	2.91%
Canadian Pacific Kansas City Limited	0.98	2.76%

High quality compounders: opportunities are selected for business model robustness, higher asymmetry, whilst still benefitting from industry growth tailwinds; the outcome is that the fund is underpinned by a solid equity compounding base.

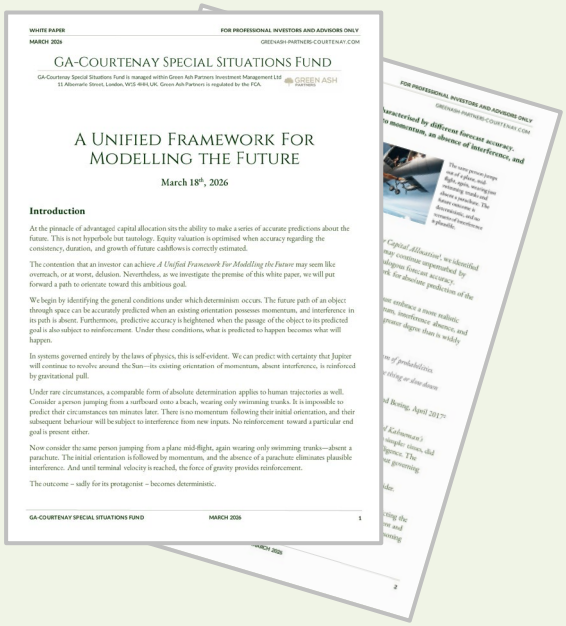
Positive carry hedge ~ 30-60% of NAV (delta)

Positive carry hedge: systemic market dislocations are addressed through an always-on, positive-carry hedge (comprised of equity index put options funded by merger arbitrage yield), protecting the path to compounding through periods of volatility.

Source: GreenAsh Partners internal systems

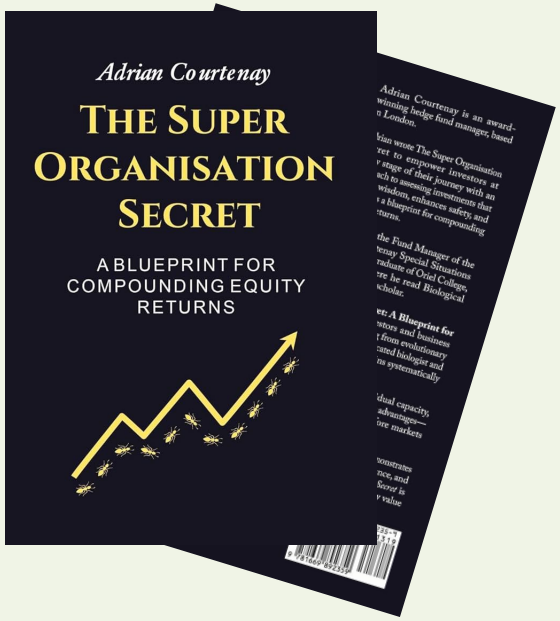
By understanding the future, and the principles of *Superorganisation*, a diversified pool of equities with exceptional promise can be targeted

The future is a function of the orientation of today's momentum, lack of interference, and the presence of reinforcement



When we look to the future, there are three vast industrial areas emerging: AI, space, and military

To identify investments, we first understand the *Superorganisation* principles that drive extraordinary corporate productivity outcomes



Superorganisations are that rare group of companies that deliver extraordinary corporate productivity outcomes through exceptional leadership and workforce productivity

With future industries selected, and business productivity principles identified, individual equities can be targeted

In the white paper, a study on Echostar and Filtronic, both public market proxies for SpaceX

Sources: GA-Courtenay publications, A Unified Framework for Modelling the Future [link], The Super Organisation Secret [link], and SpaceX The Central Bank Of The Space Economy [link]

Industries defining the fund's future-facing sector selections

SpaceX and proxies: 23% of NAV

– SpaceX and proxies –

– SpaceX, proxies, as an industry –

All rocket & satellite launches

SpaceX (discounted through EchoStar) **90% share**

Market leading provider of reusable rocket launches, and low earth orbit satellites.

Dominant protagonist for more than 20 years.

Net cash / mcap (Echostar, pro-forma): 30%

Others 10% share

Small orbital launch (<1,300kg)

Rocket Lab 65% share

Rocket Lab holds a majority share (~65%) of the dedicated small-launch-to-orbit market, driven by its Electron vehicle being the only high-cadence, operational system in that segment.

However, when including rideshare launches (primarily SpaceX), Rocket Lab's share of total small satellite launches to orbit drops to single digits (~9%).

Net debt / mcap: 1%

Others 35% share

81-86 GHz band SSPAs

Filtronic (core customer: SpaceX) **100% share**

At the high end of E-band (81–86 GHz), Filtronic is the only supplier of high-frequency solid state power amplifier (SSPAs) modules and subsystems where huge bandwidth and very low latency is required.

The result is that Filtronic is by far the price / performance leader.

Core customer: SpaceX

Filtronic has been an RF specialist for more than 40 years and held the leadership position in SSPAs since 2015

Net cash / mcap: 5%

Defence, aerospace: 18% of NAV

– Defence, Aerospace –

– Seabed –

Aqueous batteries (>6km depth)

Kraken Robotics 100% share

Kraken possesses a monopoly on large, 6,000m-depth-rated, pressure-tolerant Li-ion battery packs that are suited to 200–400 kWh vehicle applications.

Kraken is also the only company in the world that sells a military-grade Synthetic Aperture Sonar as a standalone sensor product priced anywhere near the US$0.5m level.

Core customer: Anduril

Monopoly positioning since ~2010.

Net cash / mcap: 10%

– Aerospace –

Jet engines (30% of earnings from defence)

GE Aerospace and Safran (joint venture) **55% share**

GE Aerospace: Dominant jet engine manufacturer since 1942

Net debt / mcap: 3%

Safran: Dominant jet engine manufacturer since 1965

Net cash / mcap: 1%

Pratt & Whitney 26% share

Rolls Royce 18% share

Airplane Manufacturer (10% eps defence)

Airbus 60% share

Aircraft manufacture duopolist since 1972

Net debt / mcap: 1%

Boeing 40% share

AI shifts to robotics: 11% of NAV

– AI shifts to robotics –

–From vision, factory floor, to highways–

DoW-approved low latency video

Haivision Systems 100% share

Haivision Systems possesses a monopoly on open standard Dept of War-approved video streaming.

Haivision Systems offers unmatched low latency video streams and uniquely empowers the "eyes" of Shield AI's autonomous systems alongside other growing peers.

Net cash / mcap: 5%

Industrial robots (US market)

Fanuc 56% share

Founded in 1972, FANUC has held the global leadership position in industrial robotics since 2000.

Net cash / mcap: 15%

Yaskawa 9% share

ABB 9% share

Others 26% share

Robotaxis (prospective)

Tesla 95% share

With manufacturing capacity >2m units per annum, Tesla is poised to dominate robotaxis

Net cash / mcap: 1%

Waymo/others <5% share

Infrastructure, growth orientated: 35% of NAV

– Infrastructure, growth orientated –

–Aerospace–

Airports

Aena 100% share

Monopoly owner of all Spanish airports, built from 1927

Net debt / mcap: 15%

Fraport 100% (in region)

Monopoly owner of Frankfurt airport, built 1936, undergoing terminal expansion

Net debt / mcap: 133%

Zurich Airport 100% (in region)

Monopoly owner and operator of Zurich Airport

Net debt / mcap: 20%

–Highways–

Toll roads

Ferrovial 100% (site specific)

Core asset the 407 ETR toll road is a 74 year concession across central Toronto; growth assets are multiple toll roads within Dallas.

In the scenario that autonomous vehicles are used for 64% of US vehicle miles travelled by 2040, this would increase by est. 38% total automotive urban miles travelled (autonomous frees parking land resulting in urban population increase, autonomous allows higher roadway volume per unit of road due to more precise driving, and autonomous through cheapening the cost of transit results in demand expansion), delivering significant additional long-term tailwind to Ferrovial toll road vehicle volumes

Net debt / mcap: 20%

– Rail –

Railroads

Canadian Pacific 100% share

Founded in 1881, the only both pan-US railroad and with a monopoly on uninterrupted Canada-to-Mexico transit.

Net debt / mcap: 27%

Jungfraubahn 100% share (Swiss mountain railroad)

Jungfraubahn Holding AG, founded in 1896, operates monopolistic positioning in railways, winter sports facilities, and hospitality services across the Jungfrau region in Switzerland, which is the highest altitude region in the country.

Net debt / mcap: 5%

–Energy–

Natural Gas Liquids (NGLs) US Pipelines

Enterprise Product Partners 28% share

Dominant US NGL pipeline and processing owner, in many regions a local monopolist.

Net debt / mcap: 40%

ONEOK 18% share

Energy Transfer 10% share

Targa Resources 10% share

Other 33% share

–Energy conv–

Solid oxide fuel cells

Bloom Energy 70% share

Bloom Energy the global leader in solid oxide fuel cells (SOFC), with global market share at ~70%.

SOFC fuel cells, by converting natural gas or hydrogen to electricity, have become the gating item on new datacentre construction when the limits of grid-based electricity supply have been reached.

Net debt / mcap: 1%

Mitsubishi 10% share

AISIN 10% share

Kyocera 10% share

Breakthrough companies: 7% of NAV

Breakthrough pharma

Immune system boosting to defeat cancer

ImmunityBio 100% share

ImmunityBio, a biotechnology company founded by Patrick Soon-Shiong, develops immunotherapies aimed at activating the body's natural immune system.

ImmunityBio's core drug ANKTIVA, often combined with checkpoint inhibitors or other therapies, can produce durable complete responses in multiple cancer types beyond bladder cancer, including non-small cell lung cancer (NSCLC), indolent lymphomas like Waldenström's macroglobulinemia, and recurrent glioblastoma.

The company is currently engaged with an accelerated review process with the FDA.

Net debt / mcap: 10%

Breakthrough lasers

Brightness, beam-combined laser sources

nLight 100% share

nLIGHT has established a dominant position at the forefront of high-brightness, beam-combined laser technology, where performance is defined by the ability to deliver ever-greater power without sacrificing beam quality.

The strategic importance of this capability is being amplified by a structural shift in demand, particularly in defense. Modern warfare is driving urgent adoption of directed energy systems, where high-power lasers offer a compelling economic and operational advantage—delivering low-cost, scalable responses to threats such as drones and missiles.

Net cash / mcap: 3%

Compute monopolists: 8% of NAV

–Compute monopolists–

–Compute monopolists–

Extreme Ultraviolet Lithography

ASML 100% share

Monopoly provider of EUV lithography machines since 2010

Net cash / mcap: 1%

Foundries (3nm)

TSMC 95% share

TSMC has held the number 1 market position in pure play foundries for more than two decades, progressively consolidating market share.

Net cash / mcap: 4%

Others 5% share

Royalty collectors through an inflationary age, land, gold: 24% of NAV

– Royalty collectors through an inflationary age, land, gold –

– Media rights –

Open seat motor racing

Formula One 94% share

Monopoly provider of world racing championships since 1950

Net cash / mcap: 1%

Formula E 6% share

– Waste collection –

Hazardous Waste Incineration

Clean Harbors 64% share

Leading US waste incinerator for more than 20 years

Net debt / mcap: 25%

Veolia 21% share

Others 15% share

– Land –

Florida land development

St Joe 100% share

Unmatched in scale land developer in Florida, owns the entire Bay-Walton sector, west of Panama City in Florida. Developing more than 170,000 homes.

Net debt / mcap: 11%

– Gold mining & direct ownership –

Gold mining (% prospective gold mined on US soil)

NovaGold >22% share

The largest gold mine on US soil, forecast to go into production by 2031. The mine also has significant expansion potential.

Carlin 19% share

Barrick/Newmont JV

Cortez 12% share

Barrick/Newmont JV

Others <47% share

Gold (commodity)

Gold

Sources: GA-Courtenay research, corporate disclosures

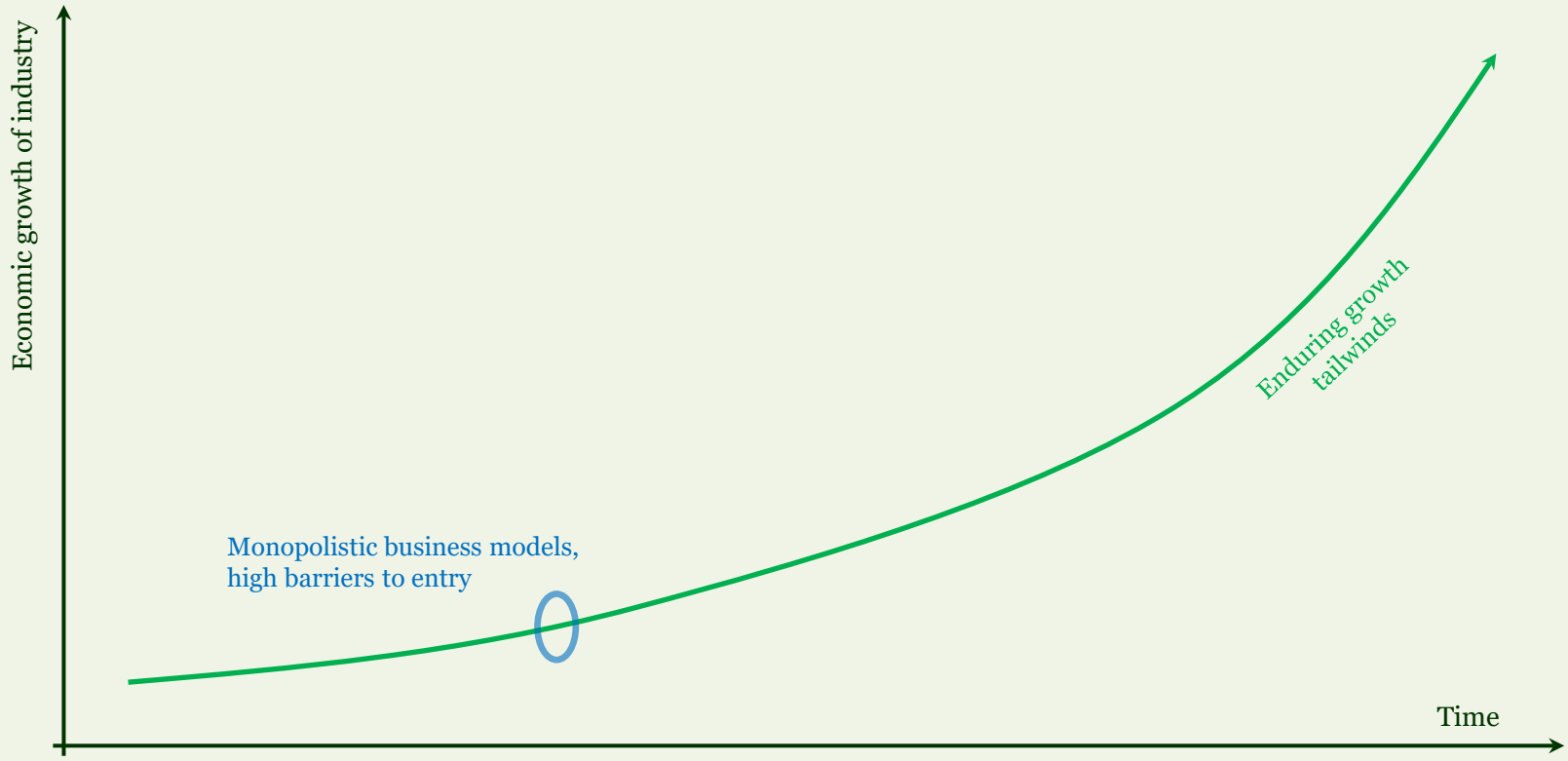
Breakthrough businesses are built by high impact leadership and workforce

Entity	*Leader*	*Founded*	*Business model*	*Fund holdings*	
Space / in-orbit economy					
SpaceX	Elon Musk 	2002	*Dominates reusable rocketry and low-cost high-cadence orbital launch with unmatched execution speed*	EchoStar Filtronic	*SpaceX is deeply discounted through EchoStar* *Direct investment through Filtronic equity; monopolist in high-power E-band SSPAs — the fulcrum technology for SpaceX Starlink backhaul*
Robotics					
Tesla	Elon Musk 	2003	*The car as a robotic platform for at-scale autonomy while developing humanoid robots that can translate AI into the physical economy*	Tesla	*Direct investment through Tesla equity*
Anduril	Palmer Luckey 	2017	*Reinventing defence with autonomous systems, rapid iteration, and software-centric architectures*	Kraken Robotics	*Investment through Kraken Robotics equity, a monopolistic supplier of deep-sea batteries and sensors to Anduril*
Shield AI	Ryan Tseng 	2015	*Shield AI's strategy targets defence enhancement by empowering massive autonomous / AI swarms across air, land, sea, and space*	Haivision Mission-Critical Systems	*Investment through Haivision Systems, a monopoly on open standard Dept of War-approved video streaming; Haivision Systems uniquely empowers the "eyes" of Shield AI's autonomous systems*
Drug discovery					
ImmunityBio	Patrick Soon-Shiong 	2014	*Pursuing a unified immunotherapy platform targeting cancer and infectious diseases; driven by a founder with a history of breakthroughs*	ImmunityBio	*Direct investment through ImmunityBio equity*
Development stage gold mining					
NovaGold	Thomas Kaplan 	1997	*Controls one of the world's largest undeveloped gold deposits; a rare blend of visionary contrarianism and long-cycle resource expertise*	NovaGold	*Direct investment through NovaGold equity*
Permanent capital structure combined with excellence in capital deployment					
Pershing Square Capital Management	Bill Ackman 	2004	*Pershing Square, which since its inception in 2004 has delivered annualised returns of more than 500bps per annum above the S&P500, continues to innovate through the Pershing Square SPARC*	Pershing Square Holdings; Pershing Square SPARC Holdings	*Direct investment through Pershing Square Holdings, Pershing Square SPARC Holdings*

Sources: GA-Courtenay research, corporate disclosures

When monopolistic businesses with high barriers to entry align to industry growth tailwinds, extraordinary value creation can occur

Business value as discounted cashflow: key uplift variables are – initial cash yield, consistent cash returning to shareholders, duration period of cash returns, growth in cash returns over time



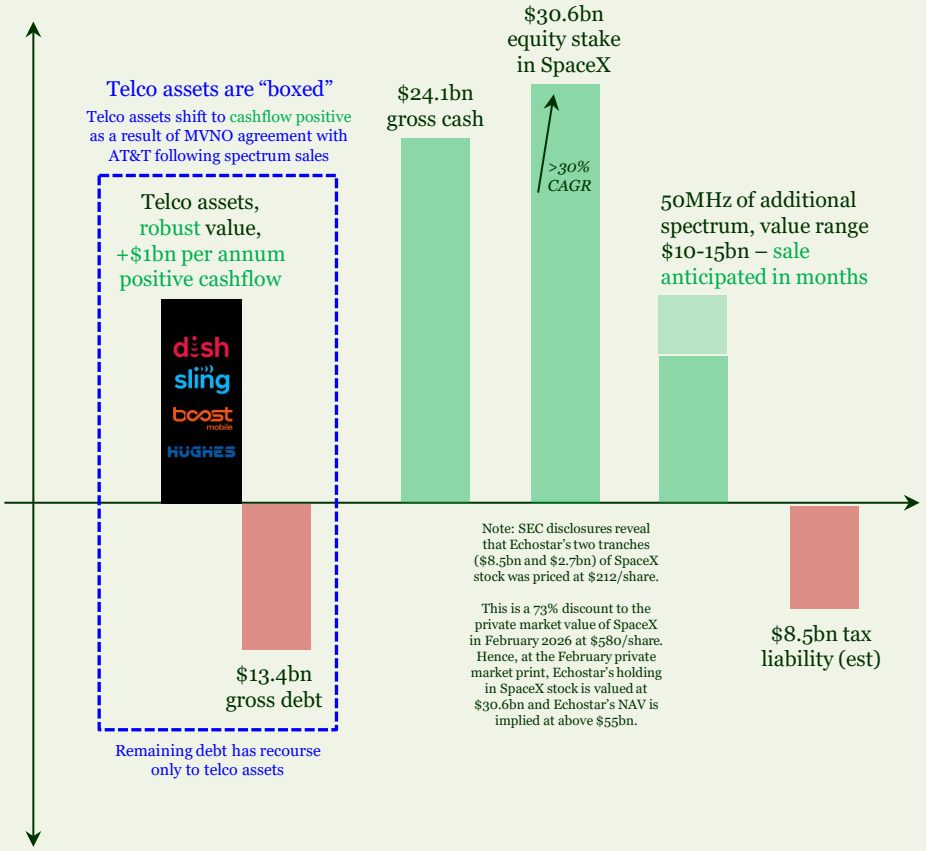
Source: GA-Courtenay research illustration

Case study: Echostar restructuring implies SpaceX at a deep discount

As SpaceX reduces the cost of reaching orbit by more than 10x, Starlink satellites possess a tailwind to dominate broadband and mobile bandwidth

Following restructuring, Echostar's net asset value is implied at above $55bn based on SpaceX secondary share sales in December

Post-restructuring $23bn sale of spectrum to AT&T, $19bn sale of spectrum to SpaceX (a portion of which paid to Echostar in SpaceX equity)



In February 2026, the private market valuation of SpaceX reached $1.4 trillion and press reports indicated the company is considering a 2026 IPO valuation of up to $1.5 trillion

BARRON'S

SpaceX Is Worth $800 Billion, Report Says. This Is Only the Beginning.

By Al Root Follow
Dec 13, 2025, 12:32 pm EST

Key Points

- SpaceX's valuation reached approximately $800 billion in a secondary share sale, with shares priced at $421, up from $212 in July, Bloomberg reported.
- Starlink, SpaceX's broadband service, is a major value driver with over 8 million customers, an increase from 5 million a year ago.
- An IPO for SpaceX is anticipated in 2026, potentially valuing the company at up to $1.5 trillion.

SpaceX could be a feast for investors in 2026.

Friday, Bloomberg reported that SpaceX had set a secondary share sale, which valued the startup at about $800 billion, citing a company memo. The price in the secondary offering was $421 a share, the report said, up from a July price of about $212 from a private market transaction.

SpaceX didn't immediately respond to *Barron's* request for comment.

The $800 billion figure would put SpaceX's valuation above that of OpenAI, as well as that of TikTok's parent ByteDance.

SpaceX is the dominant provider of space launch services, accounting for more than half of global orbital launches. Most of its value, however, is tied up in its profitable space-based broadband service Starlink, which currently has more than 8 million customers, up from about 5 million a year ago.

Beyond Starlink, investors are excited about the potential for artificial intelligence data centers in space after CEO Elon Musk recently tweeted about the idea. The data centers could be solar-powered and offer a lower-cost way to develop AI applications. SpaceX possesses launch capacity and the ability to scale the facilities rapidly via satellite manufacturing. Musk himself brings AI expertise from overseeing his startup, xAI.

AI data centers in space would also offer a way to link xAI, which owns the social media platform X, and the Musk-led Tesla. Tesla is putting AI into machines, including robotaxis, and eventually will place the technology in humanoid robots. Musk's xAI is developing AI agents, such as Grok, that compete with OpenAI's ChatGPT.

Wedbush analyst Dan Ives believes Musk's companies will eventually invest in one another. One way that could happen is a SpaceX IPO, which is now expected in 2026—thanks to another Musk tweet—at a valuation of up to $1.5 trillion. That number would make it one of the largest IPOs in history.

Before that happens, Echostar remains one of the best ways to get exposure to SpaceX stock, regardless of IPO timing. The satellite communications company has amassed about $11.1 billion in SpaceX stock by selling Musk's rocket company wireless spectrum. That's some 52 million shares at the July price, which are now worth some $22 billion.

Through Friday trading, Echostar stock has gained about 44%, adding $9.5 billion in market value since initial reports about an $800 billion valuation broke about a week ago. That is short of the $11.1 billion value gain, and it looks as if Echostar stock hasn't reacted to the potential of a $1.5 trillion IPO valuation.

However, values between Echostar stock and SpaceX don't have to line up one-to-one. There are factors to consider, among them tax efficiency, and investors holding Echostar have exposure to SpaceX, which is different from owning SpaceX. Still, tracking the value of Echostar is a good way to understand what the market is thinking about one of the most valuable and widely-followed private companies in the world.

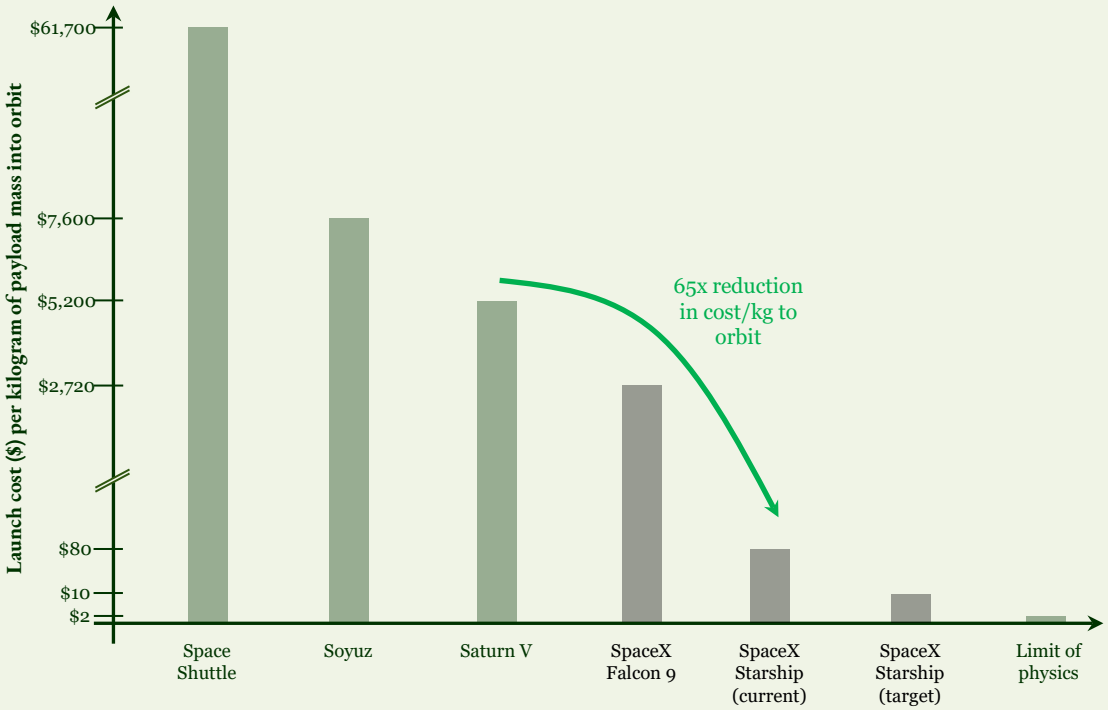
An $800 billion valuation for SpaceX would increase Musk's wealth by roughly $160 billion. He owns about 40% of the company, although the exact details aren't publicly available.

Source: Echostar corporate disclosures, public domain articles and X posts by Elon Musk, GA-Courtenay research

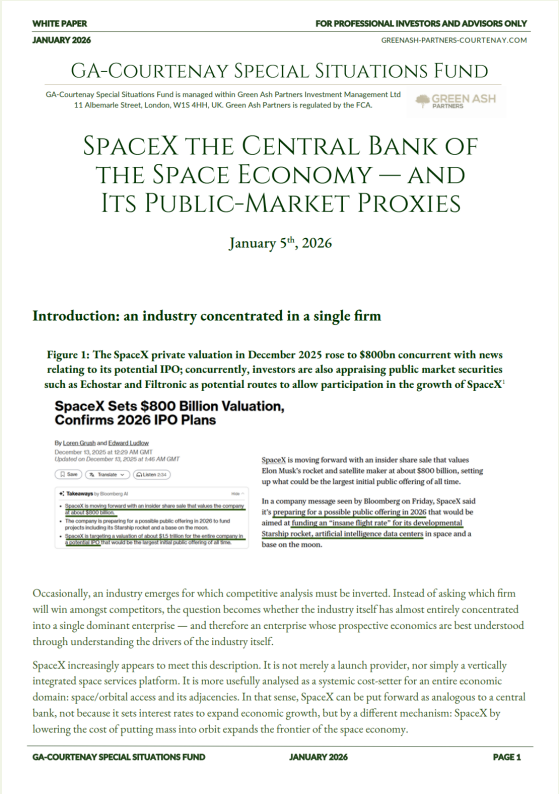
SpaceX is leading the emergence of a new space-based economy

At high launch costs ($5,000+), space is limited to governments
At low launch costs ($80), a new space-based industry has emerged

The cost collapse that created the space economy



SpaceX: an industry concentrated in a single firm



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GA-COURTENAY SPECIAL SITUATIONS FUND

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SPACEX THE CENTRAL BANK OF THE SPACE ECONOMY — AND ITS PUBLIC-MARKET PROXIES

January 5th, 2026

Introduction: an industry concentrated in a single firm

Figure 1: The SpaceX private valuation in December 2025 rose to $800bn concurrent with news relating to its potential IPO; concurrently, investors are also appraising public market securities such as Echostar and Filtronic as potential routes to allow participation in the growth of SpaceX[1]

SpaceX Sets $800 Billion Valuation, Confirms 2026 IPO Plans

By Loren Grush and Edward Ludlow
December 10, 2025 at 12:29 AM GMT
Updated on December 10, 2025 at 5:40 AM GMT

Takeaways by Bloomberg AI

- SpaceX is moving forward with an insider share sale that values the company at about $800 billion.
- The company is preparing for a possible public offering in 2026 to fund projects including its Starship rocket and a base on the moon.
- SpaceX is targeting a valuation of about $15 trillion for the entity company in a potential IPO that would be the largest initial public offering of all time.

SpaceX is moving forward with an insider share sale that values Elon Musk's rocket and satellite maker at about $800 billion, setting up what could be the largest initial public offering of all time.

In a company message seen by Bloomberg on Friday, SpaceX said it's preparing for a possible public offering in 2026 that would be aimed at funding an "insane flight rate" for its developmental Starship rocket, artificial intelligence data centers in space and a base on the moon.

Occasionally, an industry emerges for which competitive analysis must be inverted. Instead of asking which firm will win amongst competitors, the question becomes whether the industry itself has almost entirely concentrated into a single dominant enterprise — and therefore an enterprise whose prospective economics are best understood through understanding the drivers of the industry itself.

SpaceX increasingly appears to meet this description. It is not merely a launch provider, nor simply a vertically integrated space services platform. It is more usefully analysed as a systemic cost-setter for an entire economic domain: space/orbital access and its adjacencies. In that sense, SpaceX can be put forward as analogous to a central bank, not because it sets interest rates to expand economic growth, but by a different mechanism: SpaceX by lowering the cost of putting mass into orbit expands the frontier of the space economy.

GA-COURTENAY SPECIAL SITUATIONS FUND — JANUARY 2026 — PAGE 1

Source: Nasa Ames Research Centre https://ntrs.nasa.gov/api/citations/20200001093/downloads/20200001093.pdf, GA-Courtenay white paper SpaceX the Central Bank of the Space Economy [link]

Case study: Filtronic, monopolistic supplier to SpaceX Starlink in solid state power amplifier (SSPAs), also stands to realise meaningful uplift

At the high end of E-band, Filtronic is the only available supplier of SSPAs – and by far the price/performance leader

In Filtronic's FY2025 annual report, the company discloses SpaceX accounted for 83% of group revenue

81-86 GHz band SSPAs

Filtronic (core customer: SpaceX) **100% share**

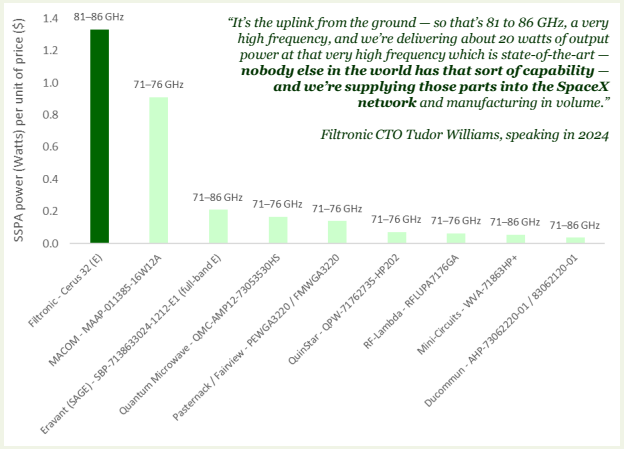
At the high end of E-band (81–86 GHz), Filtronic is the only supplier of high-frequency solid state power amplifier (SSPAs) modules and subsystems where huge bandwidth and very low latency is required.

The result is that Filtronic is by far the price / performance leader.

Core customer: SpaceX

Filtronic has been an RF specialist for more than 40 years and held the leadership position in SSPAs since 2015

Net cash / mcap: 5%



*"It's the uplink from the ground — so that's 81 to 86 GHz, a very high frequency, and we're delivering about 20 watts of output power at that very high frequency which is state-of-the-art — **nobody else in the world has that sort of capability — and we're supplying those parts into the SpaceX network** and manufacturing in volume."*

Filtronic CTO Tudor Williams, speaking in 2024

*"Everything becomes critical — the packaging, the interconnects, the thermal, the yield — it is the ability to integrate 32 MMICs (Monolithic Microwave Integrated Circuits) repeatably **that others cannot industrialise**."*

Filtronic CTO Tudor Williams, speaking in 2024

Confirmatory signalling: SpaceX takes 15% stake in Filtronic as part of as part of a long-term strategic supply and co-development agreement

filtronic

24 April 2024

Filtronic plc

("Filtronic" or the "Company")

Strategic Agreement with SpaceX for Starlink constellation

Filtronic secures a long-term partnership with SpaceX in the LEO space market

Filtronic plc (AIM: FTC), the designer and manufacturer of products for the aerospace, defence, space and telecoms infrastructure markets, is delighted to announce that it has entered into a strategic partnership and commercial agreement (the "Strategic Partnership") with Space Exploration Technologies Corp. ("SpaceX"), which designs, manufactures, launches and operates the world's most advanced rockets and spacecraft. The Strategic Partnership includes the ongoing supply of E-band Solid State Power Amplifiers ("SSPA") in addition to the development and supply of similar products at other frequency bands within SpaceX's Starlink platform.

The Strategic Partnership contract was executed with an initial irrevocable purchase order of $19.7m (£15.8m) to supply E-band SSPA modules, scheduled for delivery in FY2025, with further order flow expected to continue thereafter to support the ongoing deployment of SpaceX's Starlink constellation, which provides high-speed, low-latency high-speed internet to users all around the world.

As part of the Strategic Partnership, the Company has is issuing a total of 21,712,109 warrants to SpaceX across two tranches, to enable SpaceX to subscribe for up to a maximum of 10% of the Company's existing share capital, with such warrants expected to vest, on a variable basis, with full vesting of the warrants once approximately $60m (£48m) of orders have been placed by SpaceX. The two warrant tranches, which are split equally, are detailed below:

Tranche 1: a maximum of 5% vesting on a variable basis from order flow of the E-band SSPA platform; and

Tranche 2: a maximum of a further 5%, also vesting on a variable basis, for order flow of products developed at alternative frequency bands which would involve partnering with SpaceX on new product development.

SpaceX strategic partnership with Filtronic is for the *ongoing supply* of E-Band SSPAs and related products for SpaceX Starlink

SpaceX to be awarded 10% of Filtronic equity (a later award took this to 15%) upon $60m of orders being placed. SpaceX order placement requirement for SSPAs and next generation products.

The required volume of Filtronic module orders can be backed out from SpaceX Starlink's capacity build

The model output (illustrative purposes only): Filtronic net income exceeds £40m by 2030, compared to its current market capitalisation of £280m (5x PE)

Starlink ground stations (YE2030)	
Inputs	
56,184	Total active satellites
198	Avg effective user-link capacity per satellite (Gbps)
25%	Utilization factor (0–100%)
105	Throughput per E-band SSPA chain (Gbps)
16	Antennas per gateway site (count)
2	Chains per antenna (count)
1.50x	Availability/weather/maintenance diversity multiplier
150	Minimum sites for backbone access/latency/regulatory
4	# Filtronic modules per RF chain
3,173	Spares / field replacements of # Filtronic modules
Outputs	
32	Chains per gateway (site)
3,364	Per site throughput (Gbps)
2,779,970	Aggregate traffic to be backhauled (Gbps)
1,240	Required gateway sites
161,834	# Filtronic modules

Starlink ground stations (YE2040)	
Inputs	
305,841	Total active satellites
365	Avg effective user-link capacity per satellite (Gbps)
25%	Utilization factor (0–100%)
194	Throughput per E-band SSPA chain (Gbps)
20	Antennas per gateway site (count)
2	Chains per antenna (count)
1.50x	Availability/weather/maintenance diversity multiplier
150	Minimum sites for backbone access/latency/regulatory
4	# Filtronic modules per RF chain
17,274	Spares / field replacements of # Filtronic modules
Outputs	
40	Chains per gateway (site)
7,754	Per site throughput (Gbps)
27,904,154	Aggregate traffic to be backhauled (Gbps)
5,398	Required gateway sites
880,952	# Filtronic modules

Forecast uplift scenario: SpaceX IPO to fund "an insane flight rate" for Starship rockets, and Starlink satellites and datacentres, all of which transmit data back to earth via Filtronic's ground station SSPAs

SpaceX Sets $800 Billion Valuation, Confirms 2026 IPO Plans

By Loren Grush and Edward Ludlow

December 13, 2025 at 12:29 AM GMT

Updated on December 13, 2025 at 1:46 AM GMT

Save | Translate | Listen 2:34

Takeaways by Bloomberg AI — Hide

- SpaceX is moving forward with an insider share sale that values the company at about $800 billion.
- The company is preparing for a possible public offering in 2026 to fund projects including its Starship rocket and a base on the moon.
- SpaceX is targeting a valuation of about $1.5 trillion for the entire company in a potential IPO that would be the largest initial public offering of all time.

SpaceX is moving forward with an insider share sale that values Elon Musk's rocket and satellite maker at about $800 billion, setting up what could be the largest initial public offering of all time.

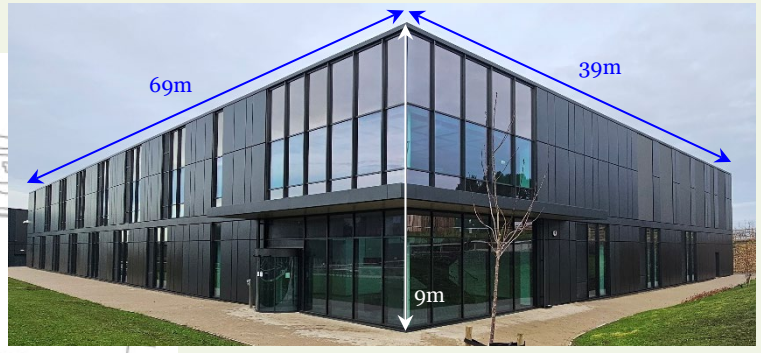
In a company message seen by Bloomberg on Friday, SpaceX said it's preparing for a possible public offering in 2026 that would be aimed at funding an "insane flight rate" for its developmental Starship rocket, artificial intelligence data centers in space and a base on the moon.

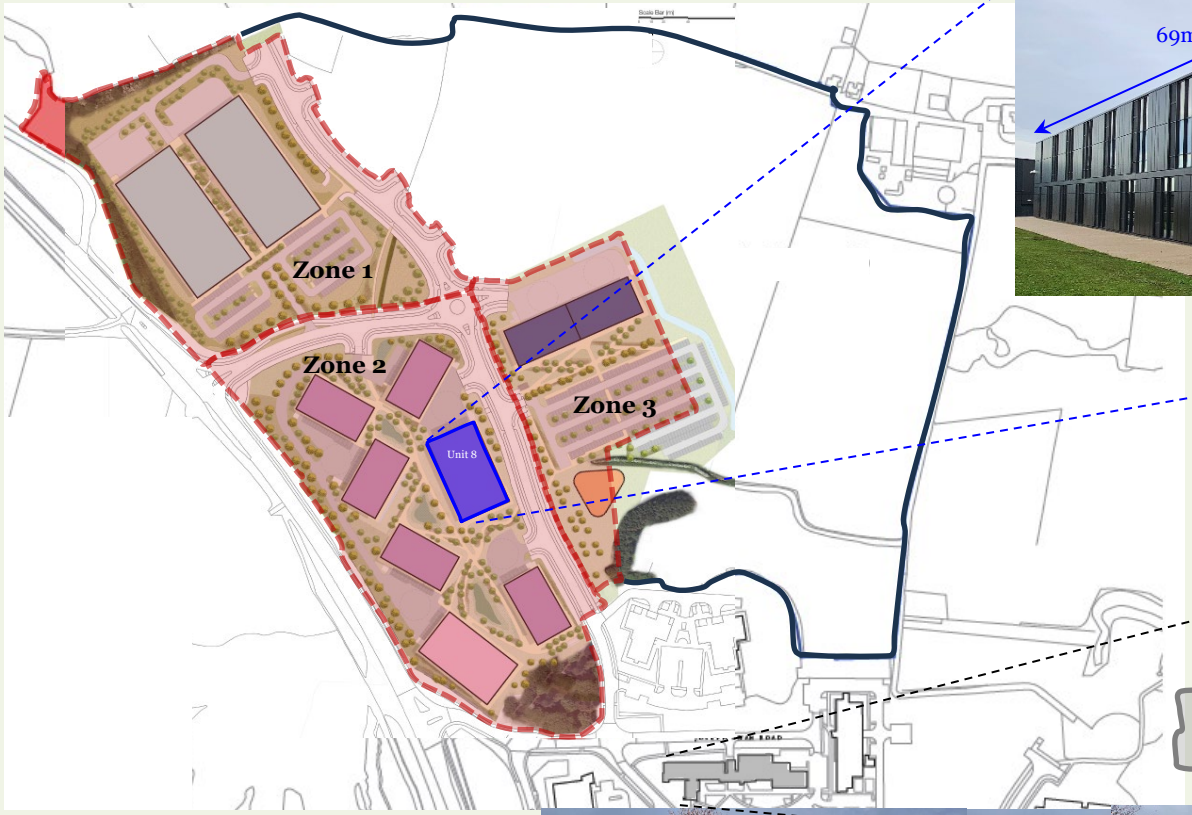
Sources: Filtronic corporate disclosures and management public statements, SpaceX corporate disclosures and management public statements, GA-Courtenay research estimates

Site visits confirm Filtronic's capacity expansion

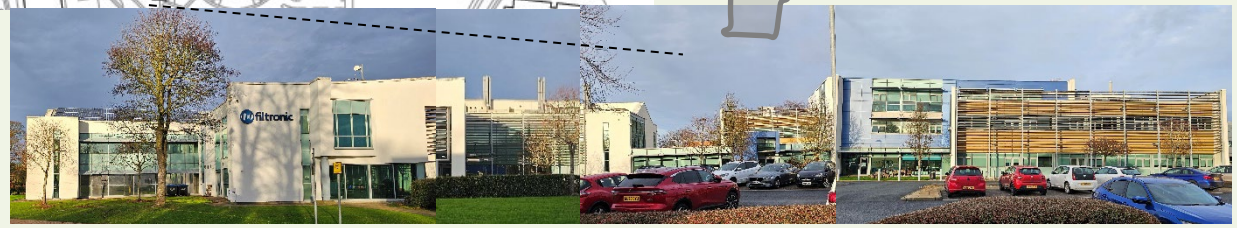
From early 2026, Filtronic is more than doubling its footprint at NetPark, Durham following a 75% increase in manufacturing capacity in 2024. The additional facilities are custom-designed, also allowing the company to move up the value chain to higher product ASPs

New Filtronic footprint adding ~90,000 sq ft over three floors, operational from early 2026





Current Filtronic head office and manufacturing is ~40,000 sq ft over two floors



We estimate 4x volume increase every 5 years, entirely on SpaceX Starlink launch trajectory

Sources: Filtronic corporate disclosures and management public statements, GA-Courtenay research and site visit estimates

Case Study: Anduril has begun US manufacturing of underwater autonomous vehicles at up to 200 per year; Kraken Robotics the batteries and sonar supplier

Anduril Arsenal 1 (Ohio) – hyperscaling manufacturing across defense components, including for autonomous underwater vehicles
up to 15 million square feet of manufacturing space

Anduril Arsenal 1 (manufacturing headquarters)

11 hrs by truck

Trucking remains the most economical transit route for Kraken's 1,000 kWh SeaPower batteries. Set against an estimated c.$6 million sale price per 1,000 kWh battery, logistics represent well under 0.1% of battery value.

Kraken Robotics Nova Scottia
(pressure tolerant batteries and sonar)

Nova Scotia (Kraken SeaPower batteries and sonar)
- Pressure-tolerant battery production is **capital-intensive, test-infrastructure heavy, and safety-regulated**
- Requires deep-water access for pressure testing + hazardous materials handling

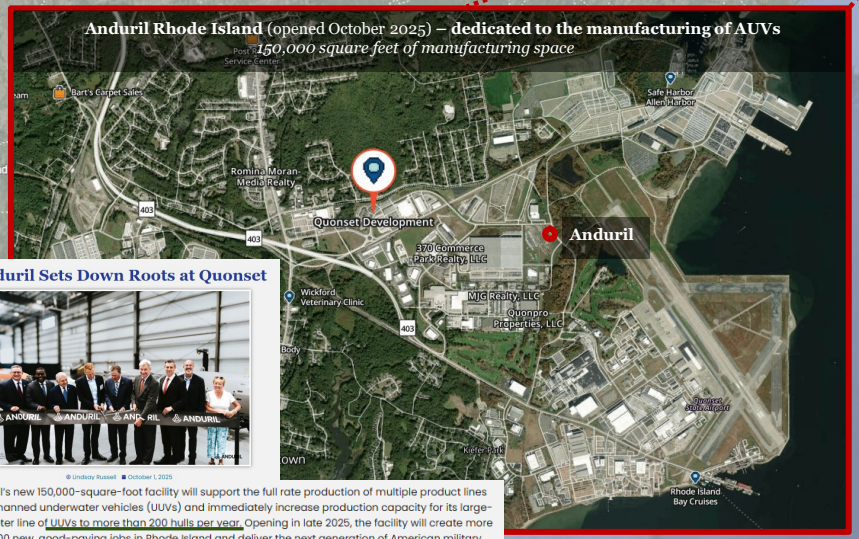
Canada offers:
- Easier permitting for pressure vessels and energy systems
- Lower fixed-cost base than New England
- Political neutrality for exports to multiple NATO navies

Kraken Robotics is a monopoly supplier to Anduril – in large, 6,000 m-depth-rated battery packs, and military-grade Synthetic Aperture Sonar (SAS)

Anduril Rhode Island
(AUV final assembly)

Anduril AUV final assembly
- Deep-water port + restricted industrial zoning
- Proximity to US Navy (NUWC, Newport), Electric Boat, Raytheon ecosystem
- Optimised for **final integration, testing, and customer handover**, not component manufacture

Anduril Rhode Island (opened October 2025) **– dedicated to the manufacturing of AUVs**
150,000 square feet of manufacturing space



Anduril Sets Down Roots at Quonset

Anduril's new 150,000-square-foot facility will support the full rate production of multiple product lines of unmanned underwater vehicles (UUVs) and immediately increase production capacity for its large-diameter line of UUVs to more than 200 hulls per year. Opening in late 2025, the facility will create more than 100 new, good-paying jobs in Rhode Island and deliver the next generation of American military technology.

Kraken Novia Scottia – dedicated to battery pack and sonar manufacturing
60,000 square feet of manufacturing space

Kraken Robotics to expand battery production as demand ramps up

Kraken's newly leased 60,000-square-foot production facility, slated to be operational by the end of 2025, will include numerous 6,000-metre pressure-testing tanks enabling the company to triple battery production to just shy of $200 million per year at capacity.

The Nova Scotia facility is near numerous existing customers in the U.S. northeast and will both reduce delivery times and facilitate customer support, creating 200 permanent advanced manufacturing jobs over the next four years, better equipping the company – alongside its original facility in Germany – to keep up with the subsea power industry's estimated 13.5 per cent compound annual growth rate through 2032.

Sources: Google Maps, public domain articles and transit pricing, GA-Courtenay research

Clear signalling by US Navy to prioritise unmanned robotic and autonomous systems, combined with multiple additional regions transitioning to Anduril AUV standard

Chief of US Naval Operations: "*Unmanned robotic and autonomous systems – that is where we are moving to as a Navy.*"

"I don't think I've ever served in a time when I've seen the Navy, Congress, and Office of Secretary of War, everyone's on the same page. There is no daylight between any stakeholder, and I think the American people as well.

AI and unmanned fleets represent a whole new set of competencies. There are specific procurement rates that we that are going to be involved with unmanned robotic and autonomous systems. That is where we are moving to as a Navy.

What we have to do now is make sure we can work with the defense industrial base, the submarine industrial base and the ship building at large to take those monies and convert that into output improvements."

Admiral Daryl Caudle,
Chief of US Naval Operations,
speaking in December 2025

*"We will accelerate the adoption of artificial intelligence, **unmanned systems**, cyber tools, and advanced stealth technologies. And we'll integrate our capabilities seamlessly across all domains **from seabed** to space."*

"The Navy I want to field is one that can meet our demands globally to protect our sea lines of communication, our commerce, the choke points of the world, to be ready to execute prompt and sustain combat operations and our most stressing operational plans.

It is a Navy that is not only ready but sustainable and has the right mix of high-end combat ships, high-end aircraft and of course unmanned autonomous vehicles that can deliver the actual lethality required to win.

There needs to be a palpable sense of urgency, a desire to be offended if we are one day off the critical path, and not be satisfied with being late."

Admiral Daryl Caudle,
Chief of US Naval Operations,
speaking in December 2025

US Navy AUV purchases already in place for Anduril Dive-LD; Anduril Ghost Shark completing active testing phase by US Navy

US Navy receives first Dive-LD drone submarine

By Dylan Malyasov | Apr 5, 2025

Defense tech company Anduril has delivered its first Dive-LD autonomous underwater vehicle (AUV) to the U.S. Navy, the company said Friday.

The Dive-LD was handed over to Unmanned Undersea Vehicle Squadron 1 (UUVRON-1), which is tasked with developing and operating undersea drones for intelligence, surveillance, reconnaissance, and other naval missions.

TechCrunch

Aria Alamalhodaei — 12:12 PM PDT · September 10, 2025

SVP Of Maritime, Shane Arnott, said Ghost Shark can be rapidly "missionized in country," meaning that governments can plug in their own payload modules as needed. Anduril has already produced a U.S. payload that is being tested off the California coast, and it has stood up a 150,000-square-foot factory in Rhode Island to produce Ghost Sharks in the U.S. if a contract materializes.

Anduril highlights contractual path by which US Navy will purchase the larger Ghost Shark AUV

Anduril Pitches Ghost Shark XLUUV to U.S. Navy

BY MALLORY SHELBOURNE
SEPTEMBER 10, 2025 7:05 PM

USNI News

Anduril wants the U.S. Navy to take advantage of its rapidly developed autonomous undersea vessel that Australia is purchasing, company officials said Wednesday.

After winning a $1.7 billion AUD award this week from the Royal Australian Navy for the Extra Large Autonomous Underwater Vehicle known as Ghost Shark, executives with Anduril are publicly urging the Navy to contract with them for the program.

"I am highly confident that in the very near future there will be a contractual path by which the United States can purchase this XL AUV for their own uses," Chris Brose, the chief strategy officer and president of Anduril, told reporters. "There's no reason why we shouldn't do that."

Noting the troubled history of the Orca Extra-Large Unmanned Undersea Vehicle (XLUUV), Brose said the U.S. Navy has "spent [a] significantly greater amount of money on that program than the Australian government and Anduril have spent developing the ghost shark capability and it's further behind. And we have spent more time in, on and under the water."

"We are more ready to go. We are more ready to deliver at scale and we will do all of that at a lower price," Brose added.

Anduril has already built a U.S. payload module made out of American steel and software that is currently undergoing testing off the coast of California should the U.S. decide to pursue Ghost Shark, which participated in last year's biennial Rim of the Pacific exercise, Anduril senior vice president for maritime Shane Arnott told reporters.

Last month, the company opened a facility in Quonset Point, Rhode Island, – where submarine builder General Dynamics Electric Boat also has a facility – to manufacture autonomous systems.

Anduril AUVs are also being piloted across European Navies, and in Taiwan

Anduril Expands Across Europe With Next-Gen Anti-Submarine and Infrastructure Defense Solutions

Published on 31/07/2025 By Carter Johnston In News

NAVALNEWS

With successes mounting in the United States, Anduril is moving forward with several underwater domain products the company sees as prime candidates for Europe's diverse maritime environments, from the Arctic to the Mediterranean.

With a growing product line enabling undersea warfare, Anduril believes its maritime domain products fit the needs of several European navies—while meeting the urgency and scale required to quickly stand up a force capable of performing a wide range of defensive and offensive undersea missions.

The Seabed Sentry design went from napkin sketches to full-scale testing, entirely self-funded, in under one year—something Anduril prides itself on.

In the context of Europe, it means monitoring, and if needed, defending the Greenland, Iceland, United Kingdom (GIUK) gap with a series of strategically placed Seabed Sentry nodes rather than the multitude of submarine hunting frigates and submarines needed historically. Or monitoring the dozens of undersea cables and pipelines in the Mediterranean from sabotage and destruction.

The flexibility of Seabed Sentry and the connectivity it provides would bring a significant boost to NATO undersea security efforts which have ramped up rapidly following the Nord Stream pipeline sabotage in 2022 and a series of submarine cable disruptions in the Baltic Sea in 2024.

But Anduril wants to go further, to enable its full product range in the European security sphere. As Arnott told *Naval News* at Sea Air Space, Anduril's products are a family of systems meshed together to provide awareness, intelligence, and strike capability. Drake emphasized how the different undersea warfare products work together.

> "Seabed Sentry provides a cordon layer, while UUV products like Dive-LD and Dive-XL change the capabilities of navies very quickly to achieve underwater mass. [Anduril's products] have the opportunity to change the game for European navies, and they can provide European navies the opportunity to achieve mass in their Areas of interest through UUVs and Seabed Sentry."
>
> *RICH DRAKE, ANDURIL'S GENERAL MANAGER FOR THE UNITED KINGDOM AND EUROPE*

While unable to disclose specific interests across Europe, Drake confirmed that Anduril has pitched Seabed Sentry to the Royal Navy for its 'Atlantic Bastion' effort, part of the United Kingdom's push for autonomous anti-submarine warfare systems in the North Atlantic.

GEO POLITICS DEFCROS NEWS 20/09/2025

NCSIST Plans to Modify and Produce Anduril Underwater Vehicles for Taiwan

Taiwan to Collaborate with Anduril on Autonomous Underwater Vehicles

Overview of the Initiative

The National Chung-Shan Institute of Science and Technology (NCSIST) announced plans to co-develop two autonomous underwater vehicles (AUVs) in partnership with Anduril Industries, enhancing Taiwan's military capabilities. This collaboration was unveiled at the Taipei Aerospace & Defense Technology Exhibition (TADTE) 2025, held from September 18 to 20.

Strategic Collaboration Goals

A project official indicated that collaborative efforts with Anduril will commence within the forthcoming months, with a particular focus on customizing the AUVs to meet specific requirements of the Republic of China (RoC) military. Key points include:

- **Customization**: Tailored adaptations to align with the operational demands of Taiwan's defense strategy.
- **Implementation Timeline**: Agreements for both projects are expected to be formalized by the end of 2025. However, details regarding the financial commitments and the scope of potential deployments remain confidential.

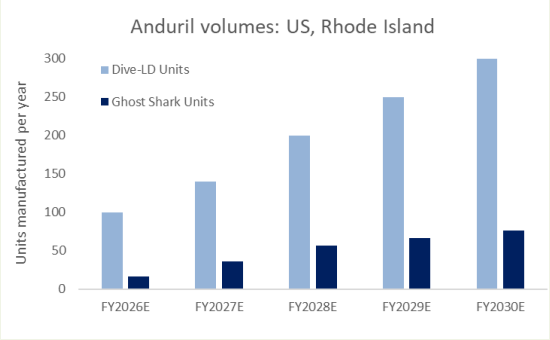
Future Development Plans

NCSIST aims to expedite collaboration with Anduril to ensure that the Dive-LD is specifically adapted for the Taiwanese context by the end of 2025. As stated by a project official:

Sources: public domain articles and interviews, GA-Courtenay research, Kraken, Anduril corporate disclosures

US and Australian order paths alone position Kraken Robotics to capture revenue and EBITDA growth at multiples of trailing economics, significantly cheapening valuation

Anduril's US autonomous underwater vehicles factory opened in Oct 2025; to produce more than 200 AUVs per annum for the US Navy



Anduril to Open Large Scale Production Facility for Autonomous Underwater Vehicles

6/17/2024

By Anduril Industries

ANDURIL

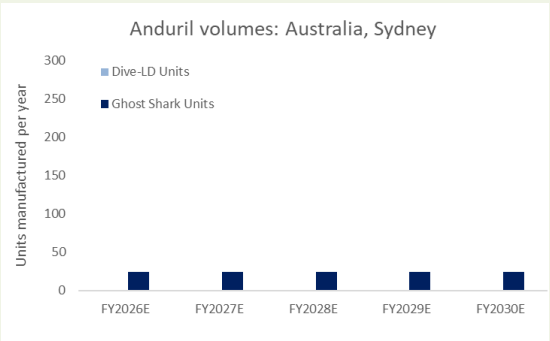
The Rhode Island production facility will enable Anduril to increase production to 200 AUVs per year and create more than 100 jobs over the next five years. The factory announcement comes amid growing demand for Anduril's AUVs, including an $18.6 million contract with the U.S. Navy.

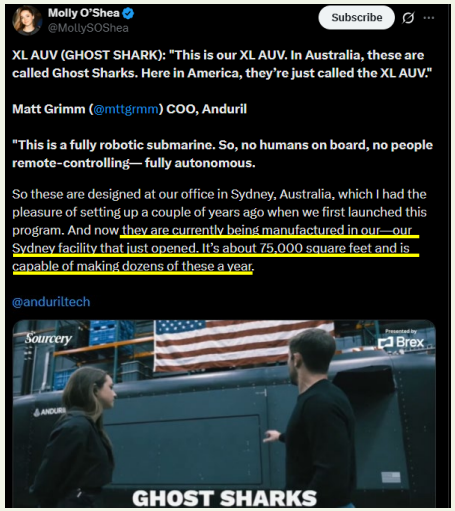
Anduril Industries is announcing a new manufacturing facility to support large-scale production of its Dive-LD family of autonomous underwater vehicles (AUVs) at Quonset Point, Rhode Island. By investing in a scaled production facility ahead of need, Anduril will be able to stay ahead of customer demand and deliver on orders with unprecedented speed.

"More than 200 AUVs per year, opening in [late] 2025"

AUVs are transforming maritime deterrence by providing an affordable, distributed, and adaptable undersea capability that complements the U.S. and allied submarine fleet. Developing, manufacturing, and fielding these systems at scale on an operationally-relevant timeline will be critical. The 100,000-150,000 square foot production facility will enable Anduril to immediately increase production capacity for its Dive-LD family of AUVs to more than 200 hulls per year. Anduril plans to create more than 100 jobs within five years of the facility opening in 2025.

Anduril's Australian autonomous underwater vehicles factory also opened in Oct 2025; to produce "dozens" of AUVs Ghost Sharks per annum for the Australian Navy





Molly O'Shea @MollySOShea Subscribe

XL AUV (GHOST SHARK): "This is our XL AUV. In Australia, these are called Ghost Sharks. Here in America, they're just called the XL AUV."

Matt Grimm (@mttgrmm) COO, Anduril

"This is a fully robotic submarine. So, no humans on board, no people remote-controlling— fully autonomous.

So these are designed at our office in Sydney, Australia, which I had the pleasure of setting up a couple of years ago when we first launched this program. And now they are currently being manufactured in our—our Sydney facility that just opened. It's about 75,000 square feet and is capable of making dozens of these a year.

@anduriltech

Anduril's production volume trajectory implies a rapidly accelerating revenue path for Kraken Robotics

- *from guided C$130m revenue in 2025, Kraken is positioned to grow revenues to C$1bn by 2027, C$2bn by 2030*
- *at its historic 25% EBITDA margins, Kraken's EBITDA reaches C$250m by 2027 and C$500m by 2030*
- *compares to Kraken current C$2.7bn Enterprise Value*

	FY2026E	FY2027E	FY2028E	FY2029E	FY2030E
Anduril volumes per manufacturing facility					
United States: Rhode Island					
Dive-LD Units	100	140	200	250	300
Ghost Shark Units	16	36	56	66	76
Total factory units	116	176	256	316	376
Australia: Sydney					
Dive-LD Units	0	0	0	0	0
Ghost Shark Units	24	24	24	24	24
Total factory units	24	24	24	24	24
Kraken Robotics revenue breakdown					
Anduril large autonomous platforms					
Dive-LD Units	100	140	200	250	300
Dive-LD ASP (C$m)	1.86	1.67	1.67	1.67	1.67
Dive-LD Revenue (C$m)	186.1	234.4	334.9	418.6	502.4
Ghost Shark Units	40	60	80	90	100
Ghost Shark ASP (C$m)	10.68	9.61	9.61	9.61	9.61
Ghost Shark Revenue (C$m)	427.3	576.8	769.1	865.2	961.3
Subtotal	613.3	811.2	1,104.0	1,283.8	1,463.7
Anduril distributed / mass-deployable systems					
Seabed Sentry Units	125	250	375	450	500
Seabed Sentry ASP (C$m)	0.20	0.20	0.20	0.20	0.20
Seabed Sentry Revenue (C$m)	25.0	50.0	75.0	90.0	100.0
Copperhead Units	300	750	1,000	1,200	1,350
Copperhead ASP (C$m)	0.10	0.10	0.14	0.13	0.13
Copperhead Revenue (C$m)	30.0	75.0	140.0	156.0	175.5
Subtotal	55.0	125.0	215.0	246.0	275.5
Non-Anduril Revenue (including service revenue)	90.0	117.0	140.4	161.5	177.6
		30.0%	20.0%	15.0%	10.0%
Total Kraken Robotics revenue	758.3	1,053.2	1,459.4	1,691.3	1,916.8

Sources: GA-Courtenay research; Kraken Robotics; Anduril corporate disclosures, forecasts provided for illustrative purposes only

Case study: ImmunityBio – immunotherapy at inflection point

ImmunityBio is transitioning from a research-focused entity into a potential global force in immunotherapy through its flagship product, ANKTIVA, which recently received FDA approval for bladder cancer. Its clinical pipeline is broad, targeting aggressive cancer conditions using a unique "immune amplification" technology to activate the body's natural killer cells.

The construction of ImmunityBio's state-of-the-art biological manufacturing facility in New York on track to be completed by year end 2026 with capacity for 1 million doses of Anktiva annually

MAY 7, 2024

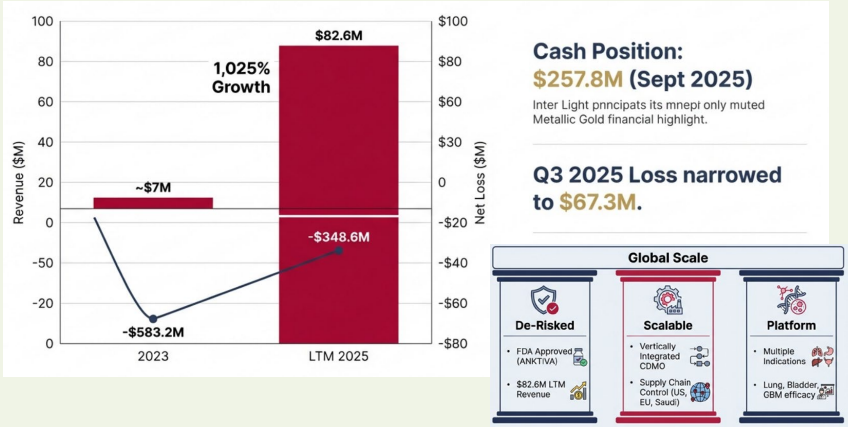
In 2020, the company began construction of a state-of-the-art biological manufacturing plant in California with large-scale bioreactors for ANKTIVA drug substance and it is anticipated to be completed in the next 12-18 months. The large-scale equipment needed for GMP biological manufacture, with long-lead times, are on site and will be installed in the next 12 months. Upon completion, this 100,000 square foot manufacturing site will have the capacity to manufacture drug substance sufficient for a million doses of ANKTIVA a year.

The drug product will be filled at the Dunkirk, New York facility, a 400,000 square foot state-of-the-art GMP facility in which the fill-finish equipment has been purchased and is in the process of being installed.

Anktiva costs $30,000 per dose, therefore 1 million doses implies a capacity build sufficient to generate $30 billion of revenue.

Trailing gross margin is >99%.

Following FDA approval (for a limited application) in 2024, ImmunityBio revenues have reached almost $100m.



Saudi approval (wider application) early 2026 raises probabilities and cadence in favour of broader US and worldwide approvals

Sources: ImmunityBio corporate disclosures, GA-Courtenay research, ImmunityBio capacity build disclosures https://ir.immunitybio.com/news-releases/news-release-details/immunitybio-completes-gmp-drug-substance-manufacturing

Case study: ImmunityBio – immunotherapy at inflection point

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"I shook his [Trump's] hand and you know how the president is. He's very charming and friendly… and he held on to my hand… I started to explain to him… we have now discovered and developed this drug… this little vial that you inject subcutaneously… is on the path to curing cancer."

"He turned to MBS and said, 'This is important for both our countries… Health care as a policy for peace… Health care an invention that comes from America and transferred to other countries is a major foreign policy for world peace'."

"He said to me, 'Patrick, this is really important.' He said, 'Patrick, when we're all done with this, I want you to meet with our people and come to the White House and discuss this.'"

"The president understood. He really believed in what we're doing."

"He invited me to the White House. He kept his promise."

"I was at the White House meeting with the most senior people."

"Sharing health with the rest of the world is a path to the Nobel Peace Prize."

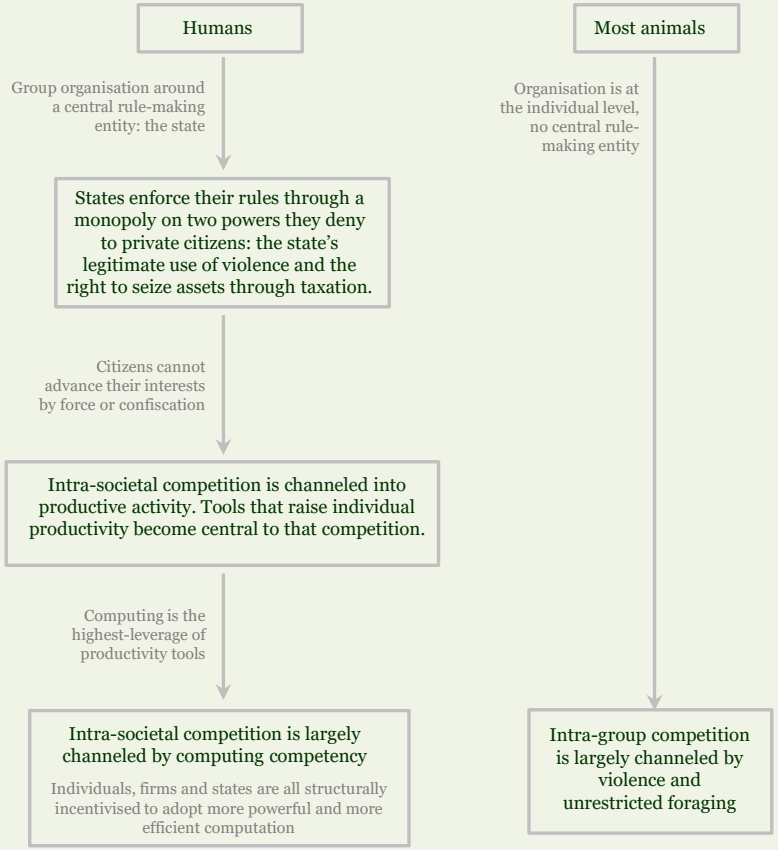
"The only person who really can make this right at the end of the day is President Trump."

Sources: YouTube interview with Patrick Soon-Shiong, January 2026 https://www.youtube.com/watch?v=KLAznrLhVKc

Tailwind breakdown: an enduring increase in computing performance

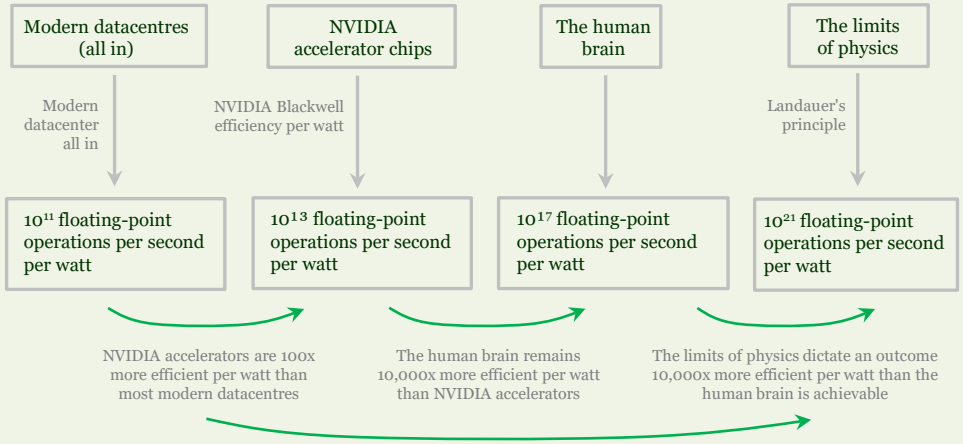
Computing efficiency/Watt remains $10^6\times$ short of the human brain, and a further $10^4\times$ short of the limits of physics

Incentive: the nature of human societies results in the enduring incentive for individual productivity through ongoing improvement computing efficiency



Achievability: computing efficiency is pushing at a 'open door'

To understand what is actually happening, the necessary recognition is that the research programs delivering computing efficiency improvement are pushing against an "open door" tailwind of long-term enhancement; Datacenter efficiency/Watt remains $10^6\times$ short of the human brain, and a further $10^4\times$ short of the limits of physics.



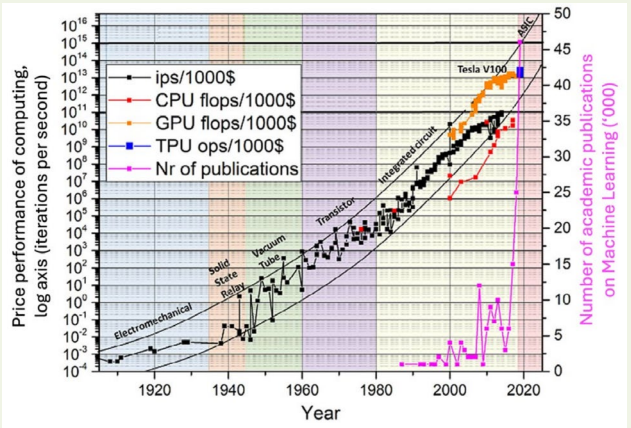
Research into improvements in computing efficiency is pushing at a 'open door' capable of delivering up to a 10,000,000,000x improvement in floating-point operations per watt

Outcome: a sustained future tailwind in increasing computing performance has deterministic qualities

The implication is that the trailing attributes of increasing computing performance per watt are extrapolatable.

The base-case contention is that this trailing tailwind still has orders of magnitude of headroom ahead of it: even if human-brain-level efficiency is reached, the limits set by physics remain a further $10^4\times$ away.

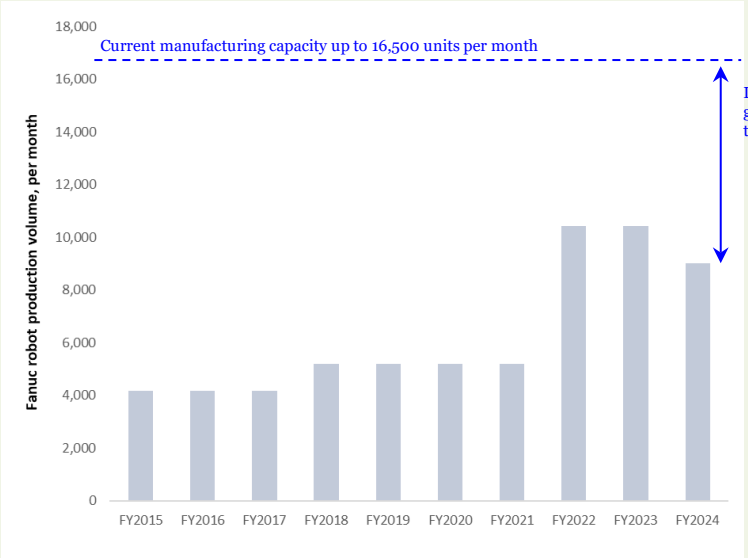
As long as economic and political incentives continue to favour higher intra-group productivity, we should expect this gap to be progressively closed over coming decades.



Source: GA-Courtenay research

Case study: Fanuc, global market leader in industrial robotics, is extremely well positioned within the ongoing shift of AI technologies to the factory floor

Fanuc's capacity expansion is indicative of an internal budget plan for volumes 83% higher than current robot production



Fanuc management, January 2022: "the evaluation of achieving a **production capacity of 16,500 units per month**, without new constructions, is ongoing"

FANUC

FANUC CORPORATION
Q&A Summary of the Telephone Conference on Financial Results for the Third Quarter ended December 31, 2021 (January 26, 2022)

Q: ROBOTs are being manufactured both in FANUC Headquarters and Tsukuba. What are your plans for enhancing production capacity in these sites, as well as in the Mibu area?

A: The monthly production capacity of ROBOTs is 11,000 units, and it seems that manufacturing at full capacity is on the horizon. By using free space within the company and improving efficiency, prospects are clear for increasing the monthly production volume to approximately 14,000 units. Also, the evaluation of achieving a production capacity of 16,500 units per month, without new constructions, is ongoing.
Still, as the robot market is expected to expand dramatically, such enhancements are seen as being limited, and will cover demands only for the next few years. Building a new ROBOT factory in Tsukuba is contemplated as the next step. If demands increase even further, there is a possibility to consider using Mibu as an option for additional production.

Fanuc 2024 annual report : "Fanuc has succeeded in **increasing the number of units that can be produced by 50%**.. this has resulted **in a production capacity of more than 15,000 units per month**."

Increasing the Capacities of the Tsukuba ROBOT Factories

The Tsukuba Robot Factory #1 began operation in August 2018 and has significantly increased its production capacity in order to meet strong demands for robots. FANUC has succeeded in increasing the number of units that can be produced by approximately 50% compared to what was initially planned, by making a series of revisions in the manufacturing process. This has resulted in a production capacity of more than 15,000 robots per month when combined with the production in the Headquarters' Factories.
At Tsukuba Robot Factory #1, the automated warehouse and transport lines have been expanded, assembly cells automated by robots have been set up, and the collaborative robot CRX has been introduced to the manual assembly process to improve the quality of bolt tightening and reduce the number of workers required. To ensure high reliability, assembled robots undergo rigorous testing, including continuous operation tests at a test site. By analyzing data on quality collected from the past, the operating conditions for the continuous operation tests have been revised, which has enabled the operating time to be shortened. This has significantly reduced test lead time and has improved the turnover rate. In recent years, demand has been rapidly growing for robots with high payloads, such as those for transferring battery units of electric vehicles. To meet this demand, FANUC has more than doubled the production capacity of the M-1000iA and M-2000iA robots with payloads exceeding 1-ton.
In November 2022, the finished products warehouse was expanded. Prior to this, robots to be shipped overseas were transported by truck to a logistics company near the port, where export packaging and vanning into containers were performed. With the new finished products warehouse, export packaging and vanning of small robots can be handled inhouse, and truck transport has been replaced by transport of containers by trailers which has improved loading efficiency. The reduction in the number of trucks helps to promote carbon neutrality and solve the "2024 driver problem" where there will be a shortage of truck drivers. The Tsukuba ROBOT Factories will continue to improve their supply capacities by increasing efficiency, and will stably supply the high quality robots that customers desire.

Tsukuba Robot Factory #1/Finished products warehouse


M-1000iA and M-2000iA production line

Source: Fanuc corporate disclosures

Fanuc is extremely well positioned with respect to the ongoing shift of AI technologies to robotics

The AI era is poised to significantly lift demand for Fanuc robotics:

* **Task set expansion**: foundation model vision, force sensing, and policy learning is today empowering robots to tackle variant-rich, previously "unautomatable" steps (i.e. kitting, bin-picking, inspection, machine tending with irregular parts). More tasks achievable → more robots demanded.

* **Friction collapse in robot deployment**: digital twin simulations and prompt engineered natural language programming shrink engineering hours and changeover times. Lower integration cost shortens payback periods → more robotics projects clear investment hurdle rates.

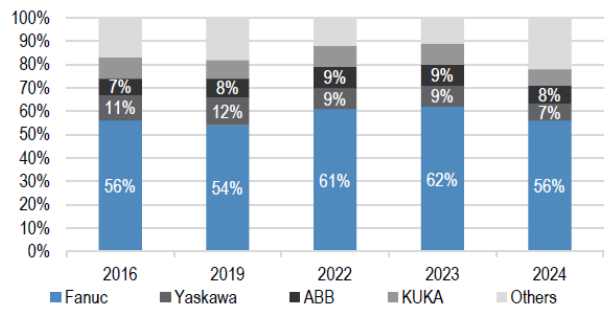
* **Uptime optimisation**: predictive maintenance (e.g. servo, robot health) and tighter motion control raises robot availability x performance x quality of output, raising economics of robot deployment and incentivising additional orders.

* **Political and demographic incentives**: onshoring incentive programs, labour scarcity, quality/traceability mandates raise the need for automation exactly where Fanuc is dominant – US industry.

* **Winner-takes-all tailwinds**: As AI pushes autonomy to the edge, factories will value widely supported platforms. Fanuc's market dominant platform and service network is positioned to become the only "safe option".

Founded in 1972, Fanuc has held the global leadership position in industrial robotics since 2000, maintaining a stable US market share exceeding 50%

Figure 125: Industrial robot market share: US



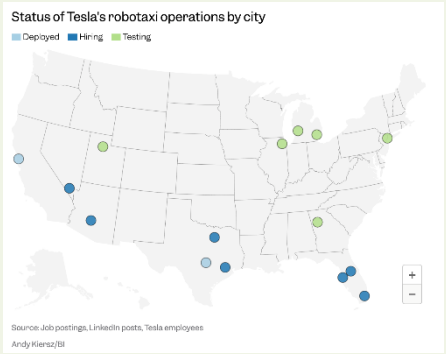
Source: Yaskawa Electric data, J.P. Morgan

Case study: autonomous vehicles, poised to deliver windfall profitability to Tesla, will also significantly increase volumes through urban toll roads

Autonomous vehicles are poised to deliver windfall profitability to Tesla

Tesla's self-driving robotaxis, achieving lowest cost provider dominant status by operating without LiDAR, have moved beyond proof of concept to deployment

As at November 2025, Tesla Robotaxis are deployed in two states, actively testing in a further six states, and Tesla has made job postings for testing in an additional seven states



Modelling Tesla AVs to charge $0.50 per mile, 100k miles per year per AV, and an eventual market opportunity of 138m AVs worldwide, indicates a $7 trillion per annum revenue opportunity

Self-driving cars	
Service revenue per year	
6,880	$bn AV TAM worldwide (service revenue/year)
0.050	$m revenue per AV/year
138	m TAM for AVs worldwide
0.50	$ per mile charged by AVs (service revenue)
289,278	passenger km/year for each AV
16.1	human car service multiplier per AV
1,250	m vehicles worldwide in 2025
77%	utilisation uplift
160,710	autonomous car km/year
1.8	average AV occupancy with pooling
16	hours/day autonomous car
28	km/h average in-service speed
12,000	km per year for non-autonomous cars
1.5	persons average occupancy
18,000	passenger-km/year

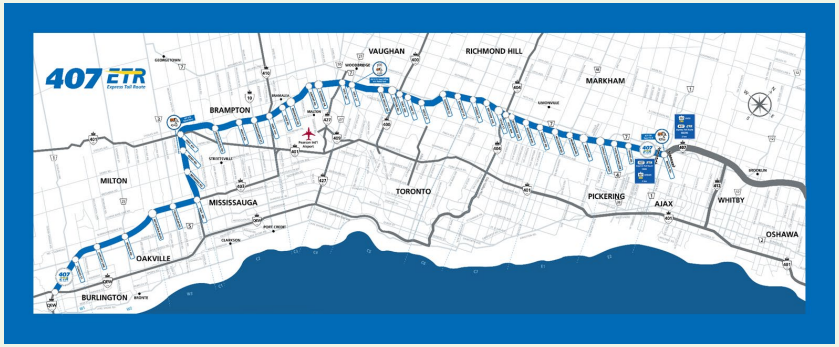
So, Tesla produces 2m vehicles a year, at $50k service revenue per vehicle autonomous (i.e. Uber driver salary), that is $200bn incremental service revenue per year.

At 138m vehicle TAM, $7 trillion service revenue opportunity.

Sources: Tesla corporate disclosures, GA-Courtenay research estimates

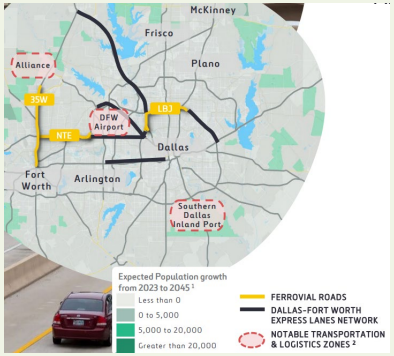
Ferrovial, long-term toll road assets (average duration to maturity 54 years)

Core asset the 407 ETR toll road is a 74 year concession across central Toronto



- over the last 10 years, toll charge per trip has been increased by 6% per annum
- Toronto population forecast to increase by 46% by 2046
- the population growth is expected mostly along the 407-ETR corridor with the land around it having been designated as a provincially significant employment zone resulting in the government devoting resources to the area to boost employment
- concession owned until 2098

Growth assets are multiple toll roads within Dallas



- over the last 10 years, toll charge per trip has been increased by more than 10% per annum
- the Dallas area is ranked no.1 in the US for population growth
- concession owned until 2060-2070

Sources: Ferrovial 2024 investor day, GA-Courtenay research

We estimate that in the scenario that autonomous vehicles are used for 64% of US vehicle miles travelled by 2040, this would increase by 38% total automotive urban miles travelled (autonomous frees parking land resulting in urban population increase, autonomous allows higher roadway volume per unit of road due to more precise driving, and autonomous through cheapening the cost of transit results in demand expansion), delivering significant additional long-term tailwind to Ferrovial toll road vehicle volumes

Tailwind breakdown: a demand tailwind in passenger flights through ongoing aerospace efficiency improvements

Achievability: ongoing advances in engines, airframes and operations can plausibly drive a 40–50% lower real cost per passenger-km over two decades

Jet engine and airplane efficiency

Jet engine and airplane efficiencies are benefitting from a classic incremental engineering curve

Jet engines

Every new engine generation has cut fuel burn per seat-km by 10% or more

Airplanes

Incremental efficiencies in fuel burn km through enhancement in composite materials, winglets, laminar flow wings, lighter cabins

An incremental 20-30% further reduction in real cost per passenger-km is plausible over two decades

Aerospace infrastructure, operational efficiencies

Air traffic management

More direct routing, continuous descent/climb profiles, less holding

Airport operations

Higher runway throughput and faster handling reduce delay and fuel burn, increasing aircraft utilisation

Network optimisation

Replacing many thin routes with hubs or selectively adding point-to-point LCC routes

Aircraft utilisation

Quicker turns, longer daily flying hours spread fixed costs (capital, crew, maintenance) over more passenger-km

Taken together, these levers plausibly deliver another 20–30% saving

The result, without assuming sci-fi propulsion, is a 40–50% lower real cost per passenger-km vs today as an achievable range over two decades. Furthermore, additional cost reduction tailwinds are *plausible*, for example, development of lower cost synthetic fuels, to push efficiency gains further.

Long-run price elasticity of demand for commercial flights has been measured at -0.8 to -1.0x, implying a 45% reduction in cost per passenger-km results in a c. 40% increase in demand for passenger-km, *with leisure-heavy segments skewing higher*.

additional demand

additional demand

additional demand

Incentive: across states, firms and individuals, an enduring demand for more commercial flight, with billions of people remaining underserved

At the level of the state

- Incentive for increasing trade
- Incentive for tourism inflows
- Incentive for regional development
- Incentive for tax receipts

Deep, recurring preference for high speed, affordable, long-range mobility, which air travel uniquely supplies

Governments therefore tend to underwrite or actively promote airport construction, route liberalisation and open-skies agreements, and only constrain aviation at the margin (noise, local pollution, climate policy). Emerging economies, in particular, see aviation as a shortcut to global integration and aggressively court airlines and airport investment.

At the level of the firm

- Customers are globally distributed
- Hiring is from global talent pools
- Suppliers and investors are globally distributed
- Remote connectivity lets a few highly productive people span many geographies while staying constantly connected to HQ—so it actually raises the value of air travel.

Deep, recurring preference for high speed, affordable, long-range mobility, which air travel uniquely supplies

At the level of the individual

- Families are dispersed
- Careers span continents
- Location specific leisure aspirations
- Rising incomes, particularly in emerging markets, higher discretionary spending

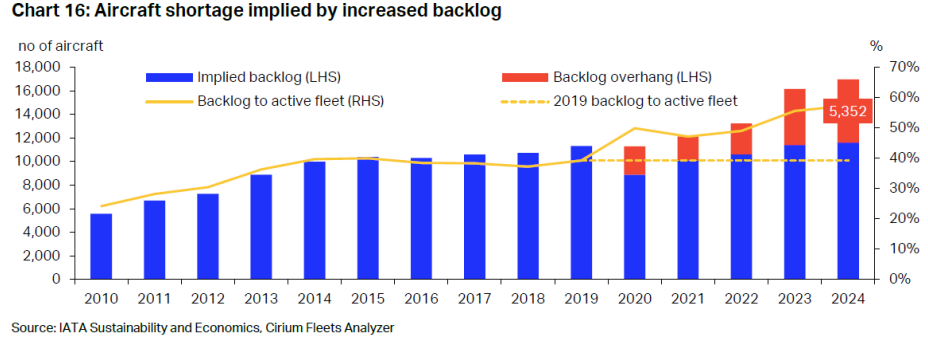
Deep, recurring preference for high speed, affordable, long-range mobility, which air travel uniquely supplies

The aspirational template is set by higher-income individuals, for whom flying for family visits, professional work and leisure is normal.

Source: GA-Courtenay research

Case study: GE Aerospace, Safran, and Airbus – jet engine and aircraft manufacturers poised to capture significant backlog and servicing tailwinds

1. Following capacity de-utilisation in the 2020 covid shock, there remains a very significant backlog in demand for new aircraft



2. Efficiency demands result in jet engine designs that run hotter. More efficient engines cheapen flights, significantly stimulating long-term demand, yet also require increased servicing, bolstering the profitability of jet engine companies such as GE Aerospace, Safran, which derive the majority of their profits from engine servicing

Air & Space Magazine

The Hotter the Better

Make an engine that can run hotter and still survive, and you can get more thrust from the same amount of fuel

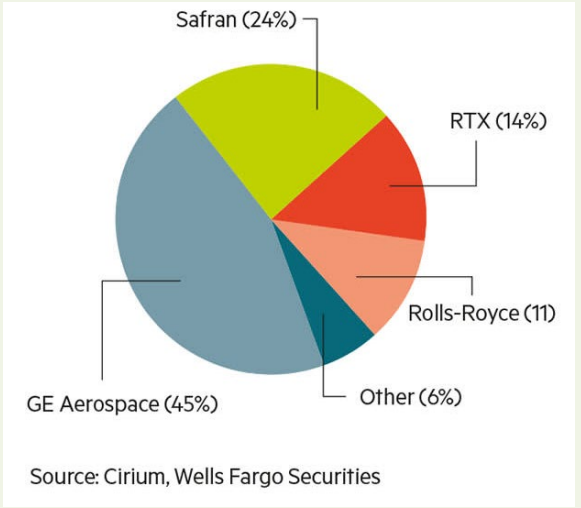
George C. Larson

- **Hot-running engines cause more wear on turbine blades and affect the engine's lifecycle.**
- **Aircraft operators demand fuel-efficient engines, with engine performance crucial for efficiency.**

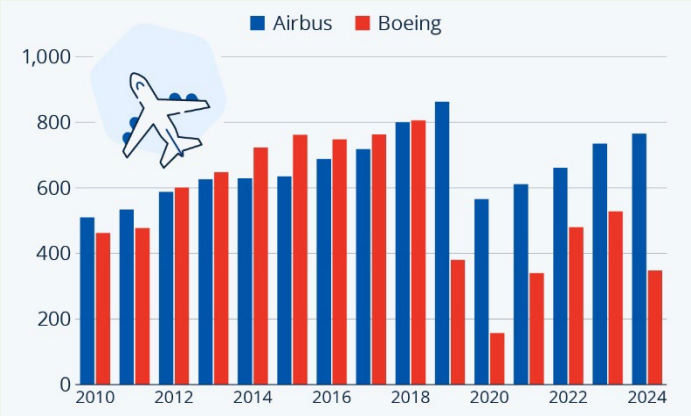
Aircraft engines are designed to withstand very high internal temperatures during flight operations. There is a limit to how high the temperature can rise within the engine. With the ever-growing need to make the engines fuel-efficient, there is a constant need to increase the engine's internal temperature.

Hot-running engines mean more wear to the materials, particularly the turbine blades. Moreover, the engine's lifecycle is affected when it is frequently operated at high power.

3. Jet engine manufacturers GE Aerospace and Safran hold an effective duopoly on commercial jet engine manufacturing



4. Airbus and Boeing constitute a duopoly on airplane manufacturing; since 2019, Airbus has dominated



Source: Corporate disclosures, public domain articles and GA-Courtenay research

Case study: Aena airport – passenger volumes by commercial flight are implied at a 6.5% CAGR by airport capex plans, well above widely used World Bank estimates

The widely used World Bank estimates for the growth in passenger volumes by commercial flight imply a CAGR of 3.4% to 2030, and 3.2% to 2040

Growth (CAGR) in volume of passenger flights 2024-2030	
2.87%	US, UK, Ger, Fra
1.87%	United States
3.39%	United Kingdom
4.83%	Germany
9.13%	France
6.51%	Japan
6.33%	Brazil
7.79%	China
11.81%	India
1.60%	World ex US, UK, Gr, Fr, ex China, ex India
3.37%	World

Growth (CAGR) in volume of passenger flights 2024-2050	
2.38%	US, UK, Ger, Fra
2.08%	United States
2.54%	United Kingdom
3.14%	Germany
3.94%	France
3.15%	Japan
4.10%	Brazil
4.58%	China
7.12%	India
2.57%	World ex US, UK, Gr, Fr, ex China, ex India
3.15%	World

Passenger volume in commercial flights 2024-2030	
3,069,000,000	US, UK, Ger, Fra
1,098,000,000	United States
171,000,000	United Kingdom
146,000,000	Germany
152,000,000	France
146,000,000	Japan
171,000,000	Brazil
1,098,000,000	China
366,000,000	India
3,069,000,000	World ex US, UK, Gr, Fr, ex China, ex India
6,100,000,000	World

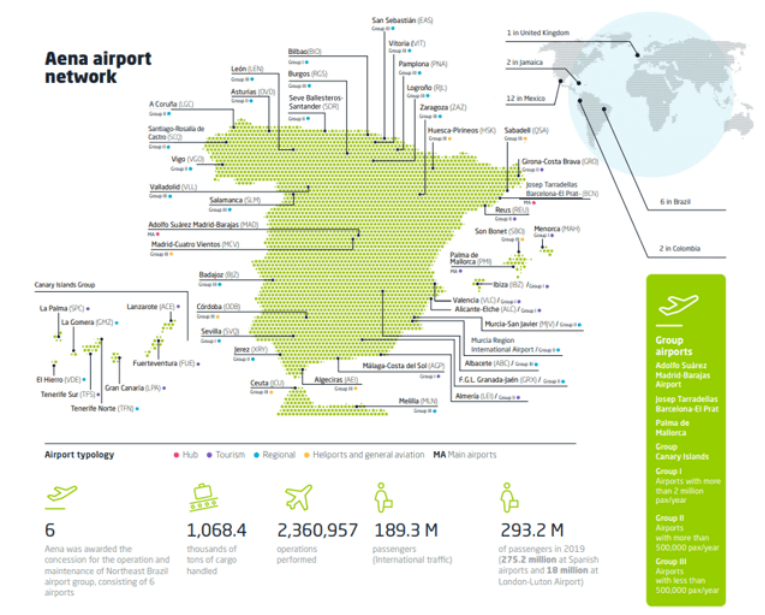
Passenger volume in commercial flights 2024-2050	
5,399,000,000	US, UK, Ger, Fra
1,680,000,000	United States
269,000,000	United Kingdom
246,000,000	Germany
246,000,000	France
224,000,000	Japan
336,000,000	Brazil
2,240,000,000	China
1,120,000,000	India
5,399,000,000	World ex US, UK, Gr, Fr, ex China, ex India
11,200,000,000	World

However, the actual capacity announcements by the world's top 20 airports can be considered a greater reveal of "insider" estimates, and imply a 6.5% CAGR in passenger volumes by commercial flight to 2030

Airport	Announced expansion to (pax, m)	Timeline	Announced passenger capacity growth CAGR (%) to 2030
Total top 20	2,122		6.5%
Atlanta – Hartsfield-Jackson (ATL)	125	2030	2.6%
Dubai International (DXB)	150	2030	10.8%
Dallas/Fort Worth (DFW)	100	2030	3.3%
Tokyo Haneda (HND)	90	2030	0.0%
London Heathrow (LHR)	92	2031	0.4%
Denver International (DEN)	100	2040	1.5%
Istanbul Airport (IST)	150	2027	29.1%
Chicago O'Hare (ORD)	100	2028	7.7%
Delhi – Indira Gandhi Intl (DEL)	125	2030	4.6%
Shanghai Pudong (PVG)	130	2030	10.2%
Los Angeles (LAX)	100	2029	2.7%
Guangzhou Baiyun (CAN)	120	2026	0.0%
Seoul Incheon (ICN)	120	2030	2.5%
Paris Charles de Gaulle (CDG)	80	2030	0.0%
Singapore Changi (SIN)	140	2034	5.0%
Beijing Capital (PEK)	80	2030	-0.5%
Amsterdam Schiphol (AMS)	70	2030	0.0%
Madrid Barajas (MAD)	90	2030	5.2%
New York JFK (JFK)	80	2030	5.9%
Shenzhen Bao'an (SZX)	80	2027	26.5%

Source: Top 20 airport disclosures, World Bank estimates

Aena, monopoly ownership of all Spanish airports; whilst landing charges are regulated, other charges (duty free rentals, taxi services, land development) remain unregulated



Favourable tailwinds: over the last 10 yrs, flights into Spain have increased at a 6% annualised growth rate; tourism has the highest elasticity of demand to lower cost in per passenger-km, Spain is delivering the highest economic growth in the Eurozone

Spain's economy keeps growing — why is the country doing so well?

PUBLISHED SAT, AUG 23 2025•2:00 AM EDT | UPDATED MON, AUG 25 2025•7:48 AM EDT

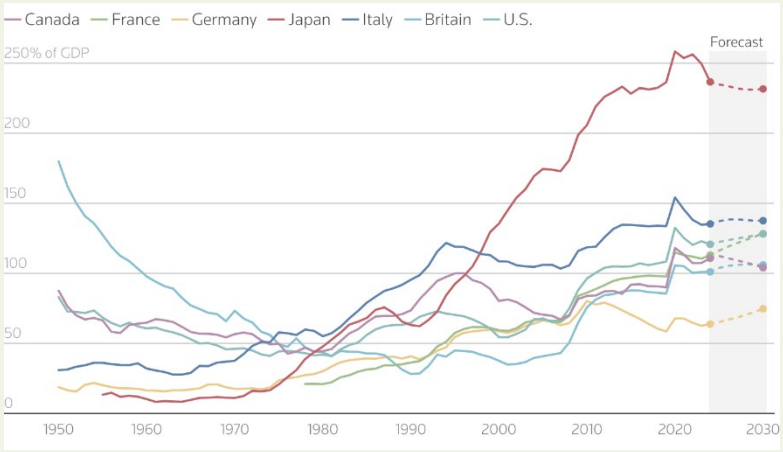
- Spain's gross domestic product surpassed expectations in the second quarter, growing 0.7%, above a forecast of 0.6%.
- Investment and consumption are the main key drivers for this growth, as well as a booming tourism sector.
- "Spain is a great outlier now in terms of growth. It's also a great place to invest," Spain's Finance Minister Carlos Cuerpo told CNBC.

Sources: Aena annual report, GA-Courtenay research, other corporate and public disclosures

Tailwind breakdown: an inflationary tailwind in favour of dominant business models with the ability to raise pricing

Across the West, a combination of rising debt/GDP, and stagnating population growth, raises the probability of currency devaluation

Rising G7 debt as % of GDP raises risk of fiat currency devaluations



Western population growth is stagnating, with many countries exhibiting population decline

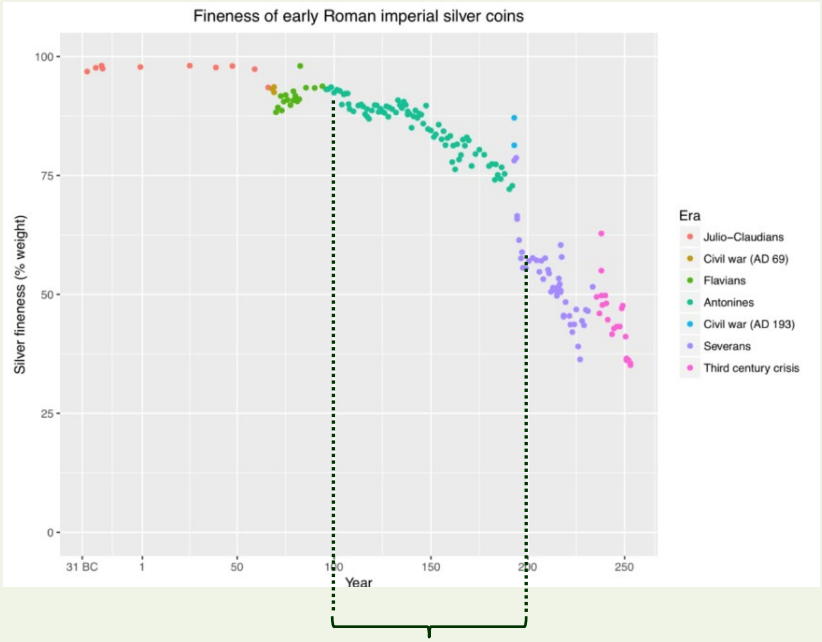
Population growth 2025-2050	Annualised	Gross
US, UK, Germany, France:	+0.20%	+5.4%
US:	+0.38%	+10.4%
UK:	+0.13%	+3.6%
Germany:	-0.22%	-5.5%
France:	-0.15%	-3.9%
Japan:	-0.68%	-16.3%
Brazil:	+0.33%	+8.9%
China:	-0.27%	-6.7%
India:	+0.54%	+15.1%
World ex US, UK, Germany, France, China, India:	+1.01%	+29.9%
World:	+0.68%	+19.3%

Whilst economic growth from AI and robotics may be sufficient to ultimately begin to lower the debt/GDP ratios..

"I came to the conclusion that the only way to get us out of the debt crisis and to prevent America from going bankrupt is AI and robotics. We need to grow the economy at a rate that allows us to pay off our debt."

Elon Musk, speaking in November 2025

.. high debt/GDP regimes over time also recognise they possess no alternative but to engage in currency devaluation, resulting in sustained periods of higher inflation, to lower the real value of their debt

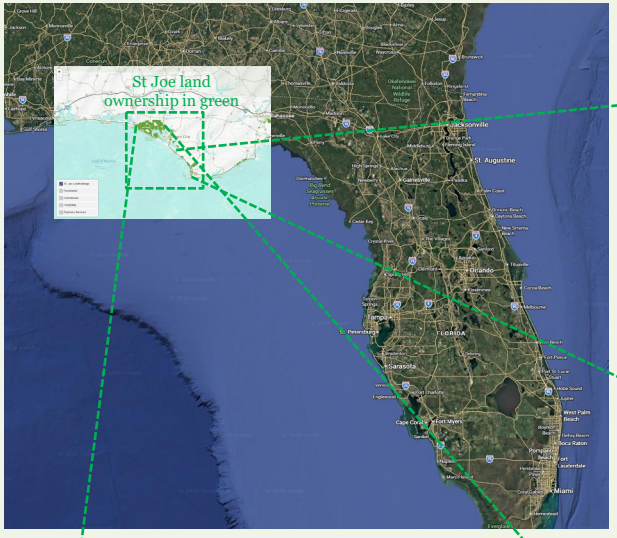


Roman currency debasement 100-200 AD

Source: Sovereign debt disclosures, World Bank estimates, Elon Musk public comments, Walker D.R. (1976-78) The Metrology of the Roman Silver Coinage, GA-Courtenay research

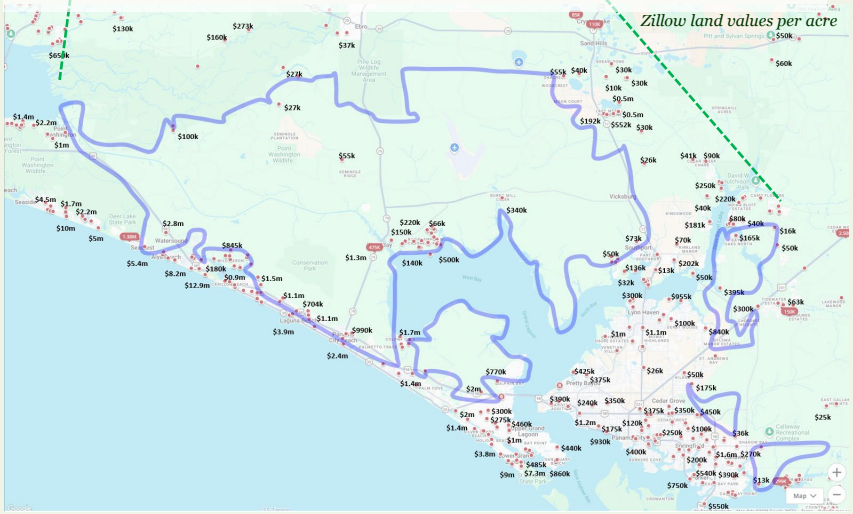
Case study: St Joe at a 90% discount to net asset value: indicative NAV at $40bn (i.e. 167,000 x $225k) is considerably inexcess of $4bn market capitalisation

St Joe owns 167,000 acres of development land in Florida, with avg land value per acre > $225k

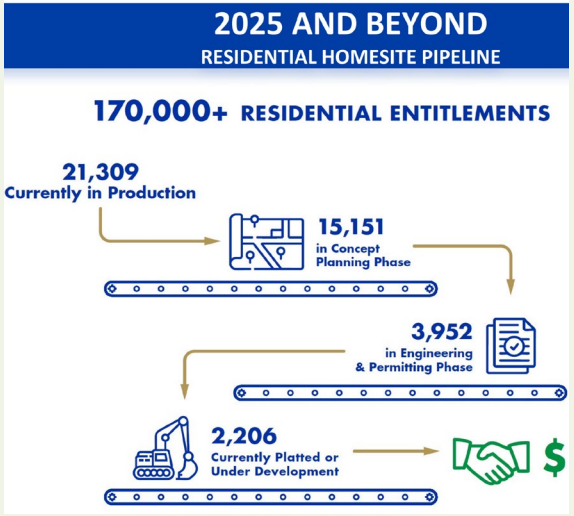


For the Port St Joe area, St Joe has rights for residential developments. Average land value per acre exceeds $300k

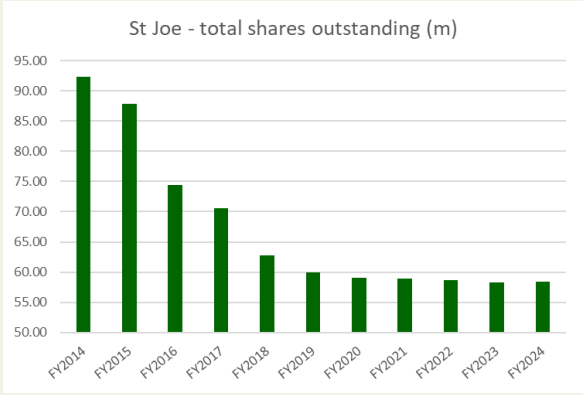
For the Bay-Walton sector area, St Joe has the legal right to develop 170,000 residential units. Average land value per acre exceeds $200k



Of the more than 170,000 residential units that St Joe is currently entitled to, 21,309 are currently in development for sale



As St Joe continues to develop and sell its properties, at the same time as using the proceeds to buy back shares, its upside trajectory is akin to a long duration liquidation; with sale proceeds deployed into share buybacks



St Joe are continuing to guide additional buybacks as properties are sold:

October 30th, 2025:

"Share repurchase is a priority for us.. through the first 9 months of 2025, we have invested $25 million in share repurchase when compared to $0 for the same 9 months in 2024.

Even after the third quarter, we have continued to repurchase shares.

And something that's important to think about, really the largest liquidity or cash event we had in the third quarter, the sale of Watercrest occurred literally a couple of days at the end of the third quarter."

Sources: St Joe corporate disclosures, Zillow land price database, GA-Courtenay research

Case study: US railroads to benefit from industry consolidation increasing pricing power through an inflationary age, concurrent with volume uplift

US onshoring of manufacturing is poised to significantly uplift railroad volumes

How Relocating Manufacturing from Asia to North America will Lead to Paradigm Shift in Rail and Logistics

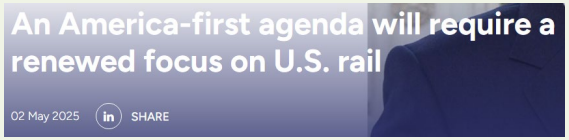
The onshoring/reshoring phenomenon does offer great potential to grow rail business in the short term and strengthen the rail industry as a whole. However, improvements are needed to move forward.

Brian Gorton
Sep 11, 2024
From Conrail Corporation

Today, onshoring and reshoring continues to grow and flourish because companies believe that by manufacturing closer to customers, they will have better control over production and logistics, experience a shortened delivery timeline, receive significant cost reductions including reduced transportation costs, and other benefits.

However, the phenomenon of relocating manufacturing from Asia to North America will lead to a paradigm shift in logistics, and in railroading, in particular. It will cause managers to completely reexamine their transportation strategies, starting from mile zero, and consider some new alternatives such as rail freight for all of its advantages.

In theory, this new phenomenon should provide railroads with a bountiful growth opportunity resulting from their perceived proximity to the onshoring/reshoring ecosystem and its customers, such as heavy equipment, food, chemicals, wood, automobiles and other categories. However, that growth will not necessarily be automatic. The railroad industry will need to evolve in three key areas to maximize this onshoring/reshoring opportunity.



Stretching coast to coast over 140,000 miles of track, the US rail network is set to play a critical part in meeting the growing domestic demand for efficient goods transport.

President Trump's "America First" agenda is prioritising delivering America's economic needs through American industry. Meanwhile, geopolitical and economic uncertainty is causing more companies to onshore their operations in the United States. A KPMG survey, published in 2024, found that 81% of U.S.-based executives say their companies are bringing back more of their supply chains due to global challenges[1]. This research was conducted ahead of the introduction of tariffs which will further amplify this trend.

Together, these factors should increase demand on the country's domestic rail networks. This is an opportunity of a scale that the sector hasn't seen in decades, including for the smaller, but critical, components of the network: its short line railroads.

According to our own research, the rail freight market in the US has seen nearly continuous growth in volumes over the last 20 years when excluding coal volumes. In addition, it has outpaced the growth in trucking in the US by around 40%. There's room for further expansion as for distances over 550 miles, where rail is typically the most cost-effective option, rail only accounts for about 50% of the freight transportation market.

December 2015: BNSF CEO states that if Norfolk Southern receives takeover approach, BNSF "would participate" either with counter offer for Norfolk Southern or with takeover of CSX

Buffett's BNSF Open to Bid for Norfolk to Challenge CP's Offer

By Thomas Black
December 10, 2015, 11:36 PM GMT *Updated on December 11, 2015, 9:40 PM GMT*

- Chairman Rose says N. America industry won't stop at one deal
- He prefers no consolidation, but would jump in if it begins

BNSF Railway Executive Chairman Matt Rose is open to making a competing offer for Norfolk Southern Corp., the company targeted by Canadian Pacific, and CSX Corp. also would be "very much in play." While BNSF doesn't favor fresh dealmaking, the carrier won't be sidelined if any occurs, Rose said Thursday in a telephone interview.

Putting Canadian Pacific together with Norfolk Southern would leave Jacksonville, Florida-based CSX at a disadvantage, inevitably making that railroad a target as well, Rose said. Canadian Pacific sees $1.8 billion in merger benefits from a Norfolk Southern deal, which "quite frankly creates an uneven, unstable railroad network with CSX," he said.

"Then you've got two railroads in the west that would be looking at, 'Should one of us jump in with the NS assets or should the other one jump in on the CSX assets?' " Rose said.

A BNSF offer for Norfolk, Virginia-based Norfolk Southern would be akin to Union Pacific's efforts to step in during the 1990s to "provide a competitive bid when the Burlington Northern and Santa Fe were merging," Rose said. "If there is consolidation to be had, we would participate as well."

July 2025: Union Pacific announces takeover of Norfolk Southern

Union Pacific and Norfolk Southern to create $250bn US rail giant in biggest deal of the year

Combined operator would be the first to carry cargo from the west coast to the eastern seaboard on its own tracks

Oliver Barnes in New York

Published JUL 29 2025 15

US railroad operator Union Pacific has agreed to acquire Norfolk Southern in the biggest deal of the year, which will create a transcontinental rail juggernaut valued at $250bn.

The largely stock-based tie-up, which would forge the largest railroad operator in the country with more than 50,000 miles of track across 43 states, comes as the industry grapples with weaker freight volumes as well as high fuel and labour costs.

A combination of Union Pacific, which operates west of the Mississippi River, and Norfolk Southern, in the east, would be the first operator in US history capable of carrying goods from the Pacific coast to the Atlantic on its own tracks. It would also help to ease a logjam around the main interchange point in Chicago.

August 2025: Trump fires Surface Transportation board member who opposed prior railroad mergers

Trump fires Democratic member of Surface Transportation Board ahead of huge rail merger decision

AP

BY JOSH FUNK
Updated 9:53 PM GMT+1, August 28, 2025

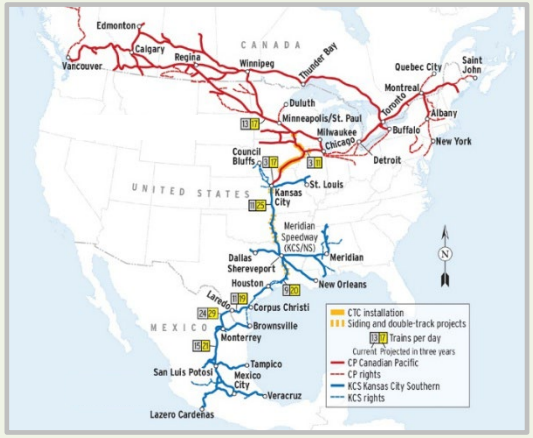
Share

President Donald Trump has fired one of two Democratic members of the U.S. Surface Transportation Board to break a 2-2 tie before the body considers the largest railroad merger ever proposed.

Board member Robert E. Primus said on LinkedIn that he received an email from the White House Wednesday night terminating the position he has held since he was appointed by Trump in his first term. The vacancy would allow Trump to appoint two additional Republicans to the board before its decision on the Union Pacific-Norfolk Southern merger though the Senate would have to confirm them.

Primus was the only board member to oppose Canadian Pacific's acquisition of Kansas City Southern railroad when it was approved two years ago because he was concerned it would hurt competition. He was named Board chairman last year by former President Joe Biden and led the board until Trump, after his election, elevated Board member Patrick Fuchs to Chairman.

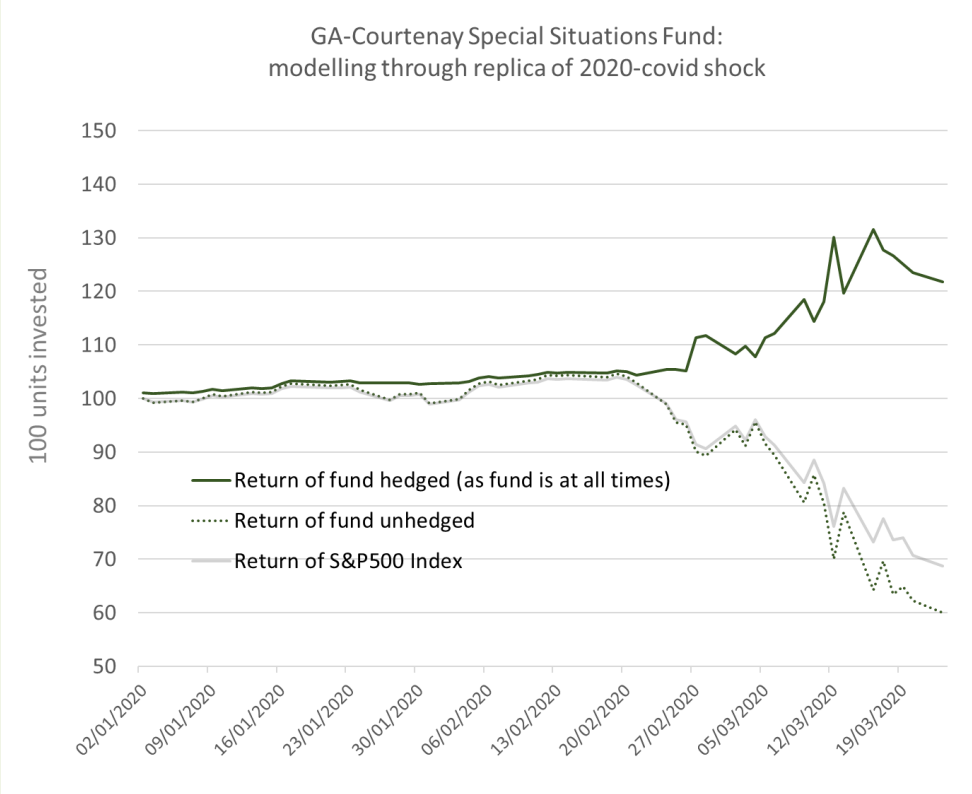
Canadian Pacific – duopoly Canada railroads and a monopoly Canada-to-Mexico railroad



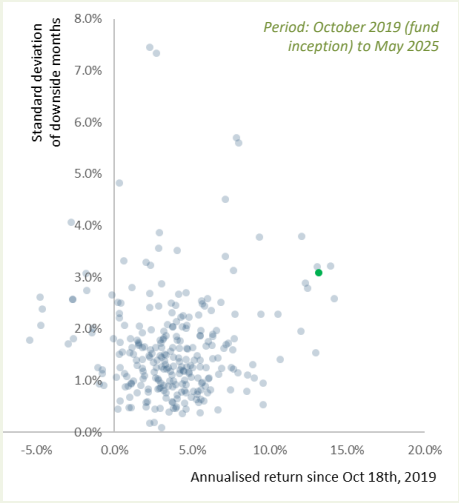
Source: public domain articles, Canadian Pacific corporate disclosures

Positive carry protection designed to deliver advantageous risk and de-correlation metrics; SSF targets a downside-aware, strong performance trajectory

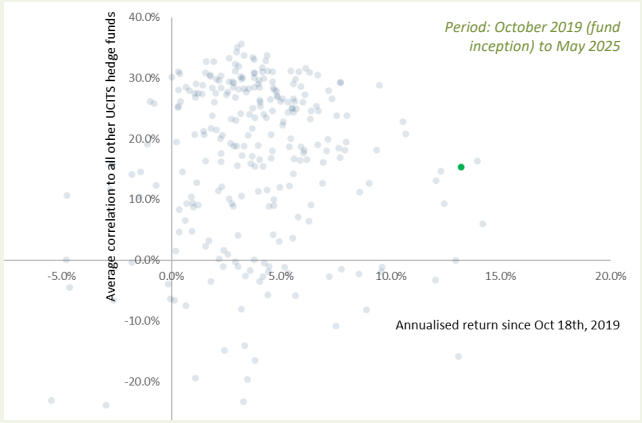
Put option protection designed to insulate fund from market shocks: S&P500 puts purchased sufficient to protect fund against extreme developments (below, modelling through repeat of 2020 covid shock)



Returns relative to risk: on a Sortino Ratio basis (return/down months SD), SSF ranks in the top one third (26th percentile) of all UCITS funds



De-correlation from other funds: below average correlation to other UCITS funds and as such SSF also acts as a powerful portfolio *de-correlator*



Source: GreenAsh Partners internal systems, GA-Courtenay research, Absolute Hedge UCITS funds database

Opportunities to partner with GA-Courtenay Special Situations Fund

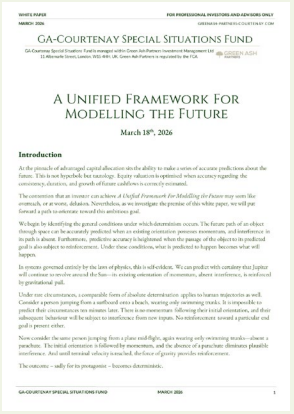
Product	*Opportunity*
***GA-Courtenay Special Situations Fund**: our flagship UCITS hedge fund* *AUM: $36m*	*The GA-Courtenay Special Situations Fund remains a unique product proposition amongst UCITS hedge funds:* • *Explicit focus on monopolistic businesses, formidable barriers to entry, long term growth tailwinds* • *Ability to safely leverage equity book* • *Product downside protection using S&P500 options, allowing product to target double digit percentage returns whilst significantly mitigating impacts from market shock scenarios* • *No long-term performance drag from holding S&P500 put options, put option decay cost paid for by merger arbitrage yield* • *Builds on Adrian's more than 20 year special situations career experience and more than 6 years in overseeing GA-Courtenay Special Situations Fund*
***GA-Courtenay Focused**: Seeder class opportunity for focused offshore GA-Courtenay Fund*	*GreenAsh Partners is in a position to agree selective access to seeder class allocations to GA-Courtenay Focused Fund. Please contact us for further information.*
***GA-Courtenay Javelin**: Concentrated segregated accounts*	*GreenAsh Partners is also able to provide bespoke, concentrated segregated accounts focused on individual or a selection of the highest conviction positions held by GA-Courtenay Special Situations Fund, alongside aligned hedge structures. Please contact us for further information.*

Running concentrated mandates alongside UCITS is complementary: the UCITS enforces a broad opportunity search, while the concentrated products harvest only the best outcomes of that search

The fund's website provides comprehensive additional information

www.greenash-partners-courtenay.com | info@greenash-partners.com

Fund strategy related white papers


WHITE PAPER — MARCH 2026 — FOR PROFESSIONAL INVESTORS AND ADVISORS ONLY

GA-COURTENAY SPECIAL SITUATIONS FUND

A UNIFIED FRAMEWORK FOR MODELLING THE FUTURE

March 18th, 2026

Introduction

At the pinnacle of advantaged capital allocation sits the ability to make a series of accurate predictions about the future. This is not hyperbole but tautology. Equity valuation is optimized when accuracy regarding the consistency, duration, and growth of future cashflows is correctly estimated.

The contention that an investor can achieve *A Unified Framework For Modelling the Future* may seem like overreach, or at worst, delusion. Nevertheless, as we investigate the premise of this white paper, we will put forward a path to orientate toward this ambitious goal.

We begin by identifying the general conditions under which determinism occurs. The future path of an object through space can be accurately predicted when an existing orientation possesses momentum, and interference in its path is absent. Furthermore, predictive accuracy is heightened when the passage of the object to its predicted goal is also subject to reinforcement. Under these conditions, what is predicted to happen becomes what will happen.

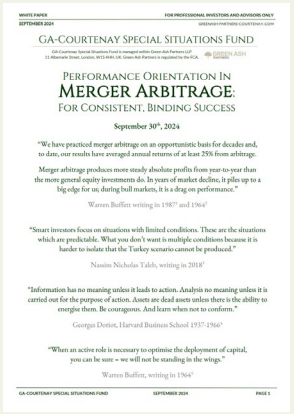
To ornate governed entirely by the laws of physics, this is self-evident. We can predict with certainty that Jupiter will continue to revolve around the Sun—its existing orientation of momentum, absent interference, is reinforced by gravitational pull.

Under our circumstances, a comparable form of absolute determination applies to human trajectories as well. Consider a person jumping from a surfboard onto a beach, wearing only swimming trunks. It is impossible to predict their circumstances ten minutes later. There is no momentum following their initial orientation, and their subsequent behaviour will be subject to interference from new inputs. No reinforcement toward a particular end goal is present either.

Now consider the same person jumping from a plane mid-flight, again wearing only swimming trunks—absent a parachute. The initial orientation is followed by momentum, and the absence of a parachute eliminates plausible interference. And until terminal velocity is reached, the force of gravity provides reinforcement.

The outcome—sadly for its protagonist—becomes deterministic.

GA-COURTENAY SPECIAL SITUATIONS FUND — MARCH 2026 — 1


WHITE PAPER — SEPTEMBER 2024 — FOR PROFESSIONAL INVESTORS AND ADVISORS ONLY

GA-COURTENAY SPECIAL SITUATIONS FUND

PERFORMANCE ORIENTATION IN MERGER ARBITRAGE: FOR CONSISTENT, BINDING SUCCESS

September 30th, 2024

"We have practiced merger arbitrage on an opportunistic basis for decades and, to date, our results have averaged annual returns of at least 25% from arbitrage.

Merger arbitrage produces more steady absolute profits from year-to-year than the more general equity investments do. In years of market decline, it piles up to a big edge for us; during bull markets, it is a drag on performance."

Warren Buffett writing in 1987[1] and 1964[2]

"Smart investors focus on situations with limited conditions. These are the situations which are predictable. What you don't want is multiple conditions because it is harder to isolate that the Turkey scenario cannot be produced."

Nassim Nicholas Taleb, writing in 2018[3]

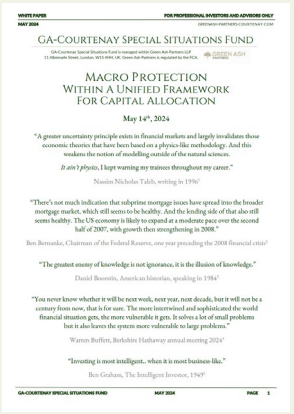
"Information has no meaning unless it leads to action. Analysis no meaning unless it is carried out for the purpose of action. Assets are dead assets unless there is the ability to energise them. Be courageous. And learn when not to conform."

Georges Doriot, Harvard Business School 1937-1966[4]

"When an active role is necessary to optimise the deployment of capital, you can be sure – we will not be standing in the wings."

Warren Buffett, writing in 1964[5]

GA-COURTENAY SPECIAL SITUATIONS FUND — SEPTEMBER 2024 — PAGE 1


WHITE PAPER — MAY 2024 — FOR PROFESSIONAL INVESTORS AND ADVISORS ONLY

GA-COURTENAY SPECIAL SITUATIONS FUND

MACRO PROTECTION WITHIN A UNIFIED FRAMEWORK FOR CAPITAL ALLOCATION

May 14th, 2024

"A greater uncertainty principle exists in financial markets and largely invalidates those economic theories that have been based on a physics-like methodology. And this weakens the notion of modelling outside of the natural sciences.

It ain't physics, I kept warning my trainees throughout my career."

Nassim Nicholas Taleb, writing in 1996[1]

"There's not much indication that subprime mortgage issues have spread into the broader mortgage market, which still seems to be healthy. And the lending side of that also still seems healthy. The US economy is likely to expand at a moderate pace over the second half of 2007, with growth then strengthening in 2008."

Ben Bernanke, Chairman of the Federal Reserve, one year preceding the 2008 financial crisis[2]

"The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge."

Daniel Boorstin, American historian, speaking in 1984[3]

"You never know whether it will be next week, next year, next decade, but it will not be a century from now, that is for sure. The more interrelated and sophisticated the world financial situation gets, the more vulnerable it gets. It solves a lot of small problems but it also leaves the system more vulnerable to large problems."

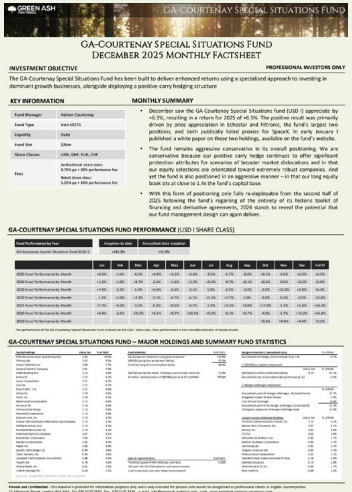
Warren Buffett, Berkshire Hathaway annual meeting 2024[4]

"Investing is most intelligent... when it is most business-like."

Ben Graham, The Intelligent Investor, 1949[5]

GA-COURTENAY SPECIAL SITUATIONS FUND — MAY 2024 — PAGE 1

Monthly factsheets


GREEN ASH — GA-COURTENAY SPECIAL SITUATIONS FUND

GA-COURTENAY SPECIAL SITUATIONS FUND
DECEMBER 2025 MONTHLY FACTSHEET

INVESTMENT OBJECTIVE — PROFESSIONAL INVESTORS ONLY

The GA-Courtenay Special Situations Fund has been built to deliver enhanced returns using a specialised approach to investing in dominant growth businesses, alongside deploying a positive-carry hedging structure

KEY INFORMATION

Fund Manager	Adrian Courtenay
Fund Type	Irish UCITS
Liquidity	Daily
Fund Size	$26mn
Share Classes	USD, GBP, EUR, CHF
Fees	Institutional share class: 0.75% pa + 10% performance fee Retail share class: 1.25% pa + 20% performance fee

MONTHLY SUMMARY

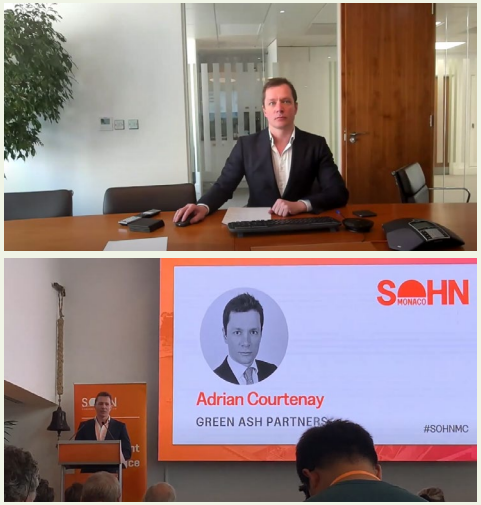
- December saw the GA-Courtenay Special Situations Fund (USD I) appreciate by +0.3%, resulting in a return for 2025 of +0.5%. The positive result was primarily driven by price appreciation in Schrödinger and Hitronic, the fund's largest two positions, and both publically listed proxies for SpaceX. In early January I published a white paper on these two holdings, available on the fund's website.
- The fund remains aggressive conservative in its overall positioning. We are conservative because our positive carry hedge continues to offer significant protection attributes for scenarios of broader market dislocations and in that our equity selections are orientated toward extraordinary robust companies. And yet the fund is also positioned in an aggressive manner – in that our long equity book sits at close to 1.4x the fund's capital base.
- With this form of positioning only fully re-deployable from the second half of 2025 following the fund's regaining of the entirety of its historic basket of financing and derivative agreements, 2026 stands to reveal the potential that our fund management design can again deliver.

GA-COURTENAY SPECIAL SITUATIONS FUND PERFORMANCE (USD I SHARE CLASS)

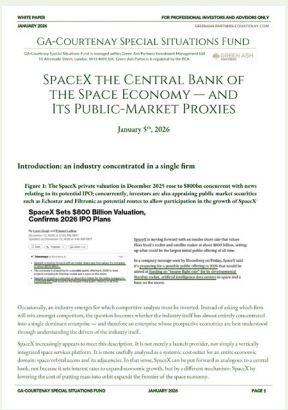
GA-COURTENAY SPECIAL SITUATIONS FUND – MAJOR HOLDINGS AND SUMMARY FUND STATISTICS

Private and Confidential

Video presentations include quarterly webinars and event presentations



Stock specific deep dives


WHITE PAPER — JANUARY 2026 — FOR PROFESSIONAL INVESTORS AND ADVISORS ONLY

GA-COURTENAY SPECIAL SITUATIONS FUND

SPACEX THE CENTRAL BANK OF THE SPACE ECONOMY — AND ITS PUBLIC-MARKET PROXIES

January 5th, 2026

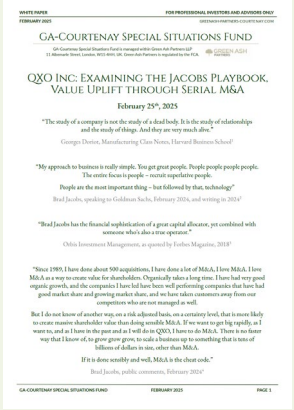
Introduction: an industry concentrated in a single firm

Figure 1: The SpaceX private valuation in December 2025 rose to $800bn concurrent with news relating to its potential IPO; concurrently, investors are also appraising public market securities such as Echostar and Iliftronic as potential routes to allow participation in the growth of SpaceX[1]

Occasionally, an industry emerges for which competitive analysis must be inverted. Instead of asking which firm will win amongst competitors, the question becomes whether the industry itself has almost entirely concentrated into a single dominant enterprise — and therefore, an enterprise whose prospective economics are best understood through understanding the drivers of the industry itself.

SpaceX increasingly appears to meet this description. It is not merely a launch provider, nor simply a vertically integrated space services platform. It is more usefully analysed as a systemic cost-setter for an entire economic domain: space/orbital access and its adjacencies. In that sense, SpaceX can be put forward as analogous to a central bank, not because it sets interest rates to expand economic growth, but by a different mechanism: SpaceX by lowering the cost of putting mass into orbit expands the frontier of the space economy.

GA-COURTENAY SPECIAL SITUATIONS FUND — JANUARY 2026 — PAGE 1


WHITE PAPER — FEBRUARY 2025 — FOR PROFESSIONAL INVESTORS AND ADVISORS ONLY

GA-COURTENAY SPECIAL SITUATIONS FUND

QXO INC: EXAMINING THE JACOBS PLAYBOOK, VALUE UPLIFT THROUGH SERIAL M&A

February 25th, 2025

"The study of a company is not the study of a dead body. It is the study of relationships and the study of things. And they are very much alive."

Georges Doriot, Manufacturing Class Notes, Harvard Business School[1]

"My approach to business is really simple. You get great people. People people people people. The entire focus is people – recruit superlative people.

People are the most important thing – but followed by that, technology"

Brad Jacobs, speaking to Goldman Sachs, February 2024, and writing in 2024[2]

"Brad Jacobs has the financial sophistication of a great capital allocator, yet combined with someone who's also a true operator."

Orbis Investment Management, as quoted by Forbes Magazine, 2018[3]

"Since 1989, I have done about 500 acquisitions, I have done a lot of M&A, I love M&A. I love M&A as a way to create value for shareholders. Organically takes a long time. I have had very good organic growth, and the companies I have led have been well performing companies that have had good market share and growing market share, and we have taken customers away from our competitors who are not managed as well.

But I do not know of another way, on a risk adjusted basis, on a certainty level, that is more likely to create massive shareholder value than doing sensible M&A. If we want to get big rapidly, as I want to, and as I have in the past and as I will do in QXO, I have to do M&A. There is no faster way that I know of, to grow grow grow, to scale a business up to something that is tens of billions of dollars in size, other than M&A.

If it is done sensibly and well, M&A is the cheat code."

Brad Jacobs, public comments, February 2024[4]

GA-COURTENAY SPECIAL SITUATIONS FUND — FEBRUARY 2025 — PAGE 1

Comprehensive fund document PDFs

DEALING

- GA-Courtenay Special Situations Fund - Dealing Form (non-US Investors)
- GA-Courtenay Special Situations Fund - Dealing Form (US investors)

KEY INVESTOR INFORMATION DOCUMENTS (KIIDS)

- KIID GBP Institutional
- KIID GBP Retail
- KIID EUR Institutional
- KIID EUR Retail
- KIID USD Institutional
- KIID USD Retail
- KIID CHF Institutional
- KIID CHF Retail

PROSPECTUS

- GA-Courtenay Special Situations Fund parent entity prospectus (September 2023)
- GA-Courtenay Special Situations Fund parent entity prospectus supplement relating to sub-fund (October 202
- GA-Courtenay Special Situations Fund parent entity prospectus addendum change of IM relating to sub-fund

EUROPEAN MIFID TEMPLATE (EMT)

- European MiFid Template (November 2023)

Fund manager interviews

Sunday's Idea Brunch

Idea Brunch with Adrian Courtenay of GreenAsh Partners

EDWIN DORSEY
JUN 22, 2025 · PAID

11 — Share

Welcome to Sunday's Idea Brunch, your interview series with great off-the-beaten-path investors. We are very excited to interview Adrian Courtenay!

Adrian is Managing Director at GreenAsh Partners and Fund Manager of GA-Courtenay Special Situations Fund, an arbitrage and special situations fund based in London and operating with a global mandate. The GA-Courtenay Special Situations Fund was launched from Odey Asset Management in 2019, prior to which Adrian was Vice President, Special Situations Group at D.E. Shaw. In April 2025, The Hedge Fund Journal named the GA-Courtenay Special Situations Fund the best-performing event-driven UCITS hedge fund over the trailing five-year period.

Links to publically disclosed shareholder activism

O3 Mining investor knocks Agnico offer

Frédéric Tomesco - The Northern Miner | January 17, 2025 | 12:53 pm Markets News Top Companies Canada Gold

A minority shareholder in O3 Mining (TSXV: OIII) is urging Agnico Eagle Mines (TSX: AEM; NYSE: AEM) to sweeten its all-cash offer for the company, saying the current proposal significantly undervalues the owner of Quebec's Marban Alliance project.

Agnico, the second-largest gold miner by stock market value, agreed to acquire O3 last month for about C$204 million in a deal that values the company's shares at C$1.67 apiece – a 58% premium to O3 Mining's closing price on the day before the bid was disclosed. A special committee of independent O3 directors unanimously recommended that the company accept Agnico's offer, which expires Jan. 23 at 11:59 p.m. (EST).

"We are perplexed at what appears to be the deeply discounted valuation of the proposed takeover of O3 Mining and a pricing level which may deliver no material advantage to Agnico Eagle," Adrian Courtenay, fund manager and managing director at London-based GreenAsh Partners, said in a statement Friday.

Appendix: full fund positioning

Equity holdings	Value $m	% of NAV
Filtronic plc	3.53	9.9%
Echostar (core asset: SpaceX equity)	3.22	9.1%
Kraken Robotics Inc.	2.37	6.7%
ImmunityBio, Inc.	2.32	6.5%
Ferrovial SE	1.68	4.7%
Aena S.M.E., S.A.	1.67	4.7%
Safran SA	1.66	4.7%
ASML Holding N.V.	1.63	4.6%
Formula One Group	1.55	4.4%
Energy Transfer LP	1.51	4.2%
Bloom Energy Corporation	1.50	4.2%
The St. Joe Company	1.48	4.2%
Enterprise Products Partners L.P.	1.47	4.2%
Pershing Square Holdings, Ltd.	1.44	4.1%
General Electric Company	1.43	4.0%
nLIGHT, Inc.	1.41	4.0%
NovaGold Resources Inc.	1.39	3.9%
Clean Harbors, Inc.	1.35	3.8%
Tesla, Inc.	1.35	3.8%
Rocket Lab Corporation	1.31	3.7%
Haivision Systems Inc.	1.29	3.6%
Jungfraubahn Holding AG	1.28	3.6%
Taiwan Semiconductor Manufacturing Company	1.26	3.5%
Flughafen Zürich AG	1.17	3.3%
Fanuc Corporation	1.10	3.1%
Fraport AG	1.07	3.0%
Airbus SE	1.03	2.9%
Canadian Pacific Kansas City Limited	0.98	2.8%

Fund statistics	% of NAV
Equity special situations, long gross exposure	125.3%
S&P500 put option protection (delta)	-29.7%
Fund net long at current option deltas	95.6%
S&P500 put option strike, % below current index level (%)	-17.2%
At strike, nominal value of S&P500 puts as % of fund NAV	201.3%

Special Opportunities	% of NAV
Pershing Square SPARC Holdings, warrants	0.00%
(SSF owns 387,285 SPAR warrants; each warrant contains	
a call on two stock units upon merger announcement)	
Gold	8.01%

Hedge economics | annualised carry		% of NAV
Annualised net hedge yield estimate % (A + B)		8.2%
1. Crash protection hedge component (S&P500 put options)		
	Value $m	% of NAV
S&P500 put option protection (delta)	-10.54	-29.7%
Annualised cost of put option decay (to expiry) (A)		-6.0%
2. Hedge funding component (merger arbitrage)		
		% of NAV
Annualised yield all merger arbitrages, disclosed terms		22.8%
Budgeted impact of deal breaks		-2.8%
Cost of fund leverage		-5.7%
Annualised yield of all merger arbitrages, break adj (B)		14.3%
Total gross exposure of merger arbitrage book		66.0%
Largest merger arbitrage holdings	Value $m	% of NAV
Space Asset Acquisition Corp.	1.51	4.3%
Beazley plc	1.33	3.8%
Electronic Arts Inc.	1.31	3.7%
Warner Bros. Discovery, Inc.	1.21	3.4%
DigitalBridge Group, Inc.	1.18	3.3%
Apellis Pharmaceuticals, Inc.	1.14	3.2%
Norfolk Southern Corporation	1.14	3.2%
Allied Gold Corporation	1.12	3.2%
Kenvue Inc.	1.09	3.1%
JTC PLC	1.02	2.9%
Amedeo Air Four Plus Limited	0.99	2.8%
Insignia Financial Ltd.	0.90	2.5%

Source: GA-Courtenay internal systems

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