SANCTUARY



Sanctuary Corner

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The Final Frontier: An Enterprising Look At The Space Economy

Brief Review Of The Equity Markets

In our view, the equity markets have entered a cyclical bear market, pricing in slower earnings growth and a pullback in data center spending. The Federal Reserve is contributing to the slowdown as it seeks to curb inflation through higher interest rates. Historically, the Fed's efforts to contain inflation have often brought fast-growing economies to an end, which is where we believe we are today.

The investment question is whether this represents a cyclical or secular shift. We believe it is cyclical and expect a recovery in 2027, which should allow stocks to reach new record highs. We continue to believe the S&P 500 can reach 10,000–13,000 by the end of the decade.

In the meantime, we expect volatility to continue into December. The last mid-term election cycle to experience a bear market in the fourth quarter was 2018, during President Trump's first term. We believe this year is repeating this cycle.

Fixed Income is responding with a rally as interest rates fall and investors shift toward this safe-haven area of the market. This is helping to diversify portfolios amid the extreme volatility we are experiencing. We anticipate that volatility may carry into December, when stocks should find their footing and set the stage for a better 2027.

This month, amid market volatility, we focus on the Space Economy, which is growing and expected to continue expanding through the end of the decade.

The Space Economy Is A New Investment Sector

Space is already embedded in the terrestrial economy through communications, navigation, and Earth observation. Reusable rockets are reducing a principal cost barrier, but lower launch-provider costs do not automatically translate into lower customer prices or guaranteed shareholder returns. We review established vs. prospective markets, the companies and ETFs available to U.S. investors, and the distinction between technological progress, commercial profitability, and attractive shareholder returns.

The Space Economy Is Taking Flight And Already Matters To The Earth Economy

Space is already an important part of the terrestrial economy. Satellite networks enable communications, navigation, weather forecasting, mapping, and national-security operations. Meanwhile, reusable rockets and improvements in spacecraft manufacturing are reducing some of the barriers that historically limited space activity to governments and a relatively small number of commercial enterprises.

The investment question is broader than whether demand for space services will grow. Investors must consider which activities can become commercially profitable, which companies can fund their development and retain competitive advantages, and whether current share prices adequately compensate investors for the risks. Lower launch costs could expand the range of economically practical activities, but the benefits will not accrue equally to every participant.

This report reviews the space economy's principal markets, orbital and cislunar regions (the space versions of geographic regions on earth), launch economics, companies, investment vehicles, and risks.

Measurements. The report uses metric units, as is customary in the space industry. One kilometer (km) is approximately **0.6 miles**; one kilogram (kg) is approximately **2.2 pounds**; and one metric ton equals **1,000 kg**, or about **2,200 pounds**.

1. What Is the Space Economy?

"That's one small step for man, one giant leap for mankind," spoken by astronaut Neil Armstrong on July 20, 1969, as he became the first person to step onto the Moon during the Apollo 11 mission.

The space economy includes the goods and services required to reach, operate in, and derive value from space. It encompasses launch vehicles, spacecraft, ground stations, and satellite operations, together with the communications, navigation, and information services used by customers on Earth. It also includes prospective industries whose commercial economics have not yet been firmly established.

Established Satellite Services Already Generate Revenue; Manufacturing In Space And Most Lunar Activity Do Not

Satellite communications connect aircraft, ships, remote communities, government installations, and increasingly, consumer devices. Navigation satellites support transportation, logistics, agriculture, surveying, and timing for financial and telecommunications networks. Earth-observation satellites collect images and measurements used in weather forecasting, environmental monitoring, agriculture, insurance, and intelligence.

A satellite constellation is a coordinated group of satellites working together to provide broader or more continuous coverage than a single satellite could provide alone. Constellations are central to newer low-Earth-orbit broadband networks and to frequent imaging of Earth's surface. Their expansion creates demand for launches, spacecraft, antennas, electronics, and ground infrastructure.

Space manufacturing is already an established industry in the sense that companies build satellites, launch vehicles, instruments, and related components on Earth. This should be distinguished from manufacturing in space, which remains an emerging commercial activity.

Navigation, Weather And Communications Create Large Economic Value That Never Appears In Space-Industry Revenue Figures

The direct revenues of satellite operators understate the economic significance of space infrastructure. A navigation signal, for example, may be available at no direct charge to an individual user while enabling valuable activity throughout the economy. Google Maps, which uses satellite navigation, is one example. Similarly, satellite weather data and communications support many businesses whose revenues are not counted as space-industry sales. The National Institute of Standards and Technology (NIST) estimated that GPS alone generated roughly $1.4 trillion in economic benefits to the U.S. private sector from 1984 to 2017, and that an outage today is estimated at about $1 billion per day in U.S. losses.

This distinction matters when interpreting estimates of the space economy's size. Some measures count only direct space-industry revenue; others include broader downstream economic activity. Figures based on different definitions should not be compared without qualification.

Government And National-Security Demand Remains A Major Source Of Revenue, But Export Controls Limit Global Sales

The U.S. Space Force, established in 2019, organizes military capabilities related to space operations, including satellite communications, missile warning, navigation support, and the protection of space systems. Civil agencies and defense organizations are major customers for spacecraft, launches, sensors, and data services. Government procurement can help sustain technologies before a broad commercial market develops.

Space technology also faces extensive export controls. The International Traffic in Arms Regulations (ITAR) govern specified defense articles, technical data, and services, while the Export Administration Regulations (EAR) apply to many commercial and dual-use goods, software, and technologies. These rules can protect sensitive capabilities, but may restrict international sales, partnerships, and technology transfers. Not every commercial satellite or component falls under the same regulatory regime.

Orbital Servicing, In-Space Manufacturing And Lunar Resources Are Still Prospective, Not Demonstrated Commercial Markets

Several prospective markets deserve attention, although they are at different stages of development.

Orbital Servicing

Orbital servicing could extend spacecraft lifetimes through inspection, repositioning, refueling, or repair. Manufacturing in microgravity might produce selected materials or products with properties difficult to achieve on Earth, but repeatable demand and favorable economics remain to be demonstrated. Orbital computing and data centers could offer advantages for some specialized applications, although launch, power, communications, and thermal-management requirements are formidable.

Cooling

Cooling is a particularly important constraint. Space is cold in the everyday sense, but a vacuum does not remove heat through convection: spacecraft must radiate waste heat. The James Webb Space Telescope illustrates sophisticated thermal engineering: its sunshield limits external heating, while its instruments use passive and, in one case, active cooling. Webb operates near the Sun–Earth L2 point (where the gravity of the earth and sun offset one another), however, and is not evidence that a megawatt-scale orbital data center can be cooled economically.

Space-based solar power and lunar or asteroid resource extraction remain longer-range possibilities. Their attractiveness depends on major advances in transportation, construction, power transmission, robotics, and the creation of dependable markets.

The most useful distinction is between established services, developing commercial activities, and speculative future industries. All may be technologically interesting; only some currently support repeatable revenue and demonstrable profitability.

2. Where Is the Space Economy?

Most Commercial Activity Today Is In Earth Orbit; Altitude Determines Coverage, Delay And Cost

Space has no sharp physical boundary. The Kármán line, approximately 100 km (62 miles) above sea level, is a widely used convention marking the beginning of space. Reaching that altitude does not mean a vehicle has achieved orbit: orbital flight requires sufficient horizontal speed to continue falling around Earth rather than returning directly to the surface.

A spacecraft's location affects the area it can cover, communications delay, propulsion requirements, and operating expense. Most current commercial activity takes place in Earth orbit; prospective lunar activity could extend the operational reach of the industry.

Region	Approximate altitude or distance	Principal activities
Near space	Term varies by context; not a single orbital band	Activities in Earth's vicinity; define usage carefully
Low Earth orbit (LEO)	Roughly 160-2,000 km above Earth	Broadband constellations, Earth observation, space stations, prospective manufacturing
Medium Earth orbit (MEO)	Roughly 2,000-35,786 km	Navigation systems, including GPS, and selected communications
Geostationary orbit (GEO)	About 35,786 km above the equator	Fixed-position communications and continuous weather monitoring
Cislunar space	Broadly the Earth-Moon region; no single agreed boundary	Lunar transportation, communications, navigation and logistics
Moon	Average distance about 384,400 km from Earth's center	Exploration, infrastructure and prospective resource extraction

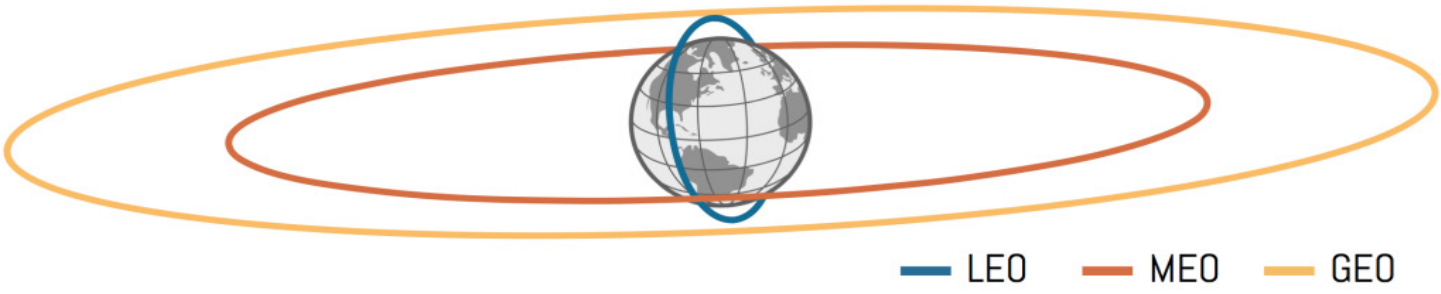
Source: Bloomberg, November 9, 2026

LEO satellites complete an orbit relatively quickly and may require a large constellation to provide continuous coverage of a particular region. **MEO** satellites cover larger areas and are important for global navigation. A satellite in geostationary orbit appears fixed over one point on the equator, making it useful for communications and weather observation. Not every geosynchronous orbit is geostationary; inclined or elliptical geosynchronous satellites need not appear stationary.

Cislunar Space includes routes and operating locations associated with Earth and the Moon. Lagrange points are locations where gravity and orbital motion allow spacecraft to remain in approximately the same position relative to two larger bodies. A fuller explanation belongs in the glossary.

Spacecraft may initially enter a transfer orbit before propulsion maneuvers place them in their final orbit. Polar and sun-synchronous orbits describe orbital geometry rather than separate altitude bands and are useful for repeated observation of Earth. More distant destinations generally require more propulsion energy and supporting infrastructure.

Orbital Regions



Source: CSIS Aerospace Security, Earth Orbit 101

3. The Launch Revolution

"*My vision is for a fully reusable rocket transport system between Earth and Mars that can re-fuel on Mars – this is very important – so you don't have to carry the return fuel when you go there.*" Elon Musk

Reusable Rockets Are Lowering the Principal Cost Barrier, but Lower Provider Costs Do Not Automatically Mean Lower Customer Prices

The cost of launch is the primary bottleneck to the expansion of the space economy. Satellites, power systems, manufacturing equipment, and any future orbital or lunar infrastructure must first be transported to their operating locations. For decades, expensive expendable rockets confined much of the industry to high-value government and commercial missions. Reusable launch systems have begun to change that constraint.

From Expendable to Reusable Rockets

Traditional rockets discard most of their major components after a single flight. Reusable systems recover and fly selected components again, spreading manufacturing expense across multiple missions. SpaceX's Falcon 9 has demonstrated booster reuse at substantial commercial scale. Rocket Lab's Electron serves smaller payloads, while its planned Neutron vehicle is intended to address a larger market. SpaceX's Starship seeks much greater capacity and more extensive reusability, but its ultimate operating economics and sustained commercial performance remain to be established.

Reusability does not eliminate costs. Recovery, inspection, refurbishment, and operations require labor and capital; reserve fuel and recoverable hardware can reduce payload capacity. The economic advantage depends on reliable reuse and sufficiently frequent launches. A high flight rate can also improve utilization of launch pads, factories, and personnel.

Customer Price, Provider Cost, And Margin Are Three Different Numbers; Only The First Is Usually Public

Three concepts must remain distinct. Customer price is what a launch buyer pays. Provider cost is what the launch company spends to deliver the mission. Margin expresses the difference between price and cost as a percentage of revenue. Lower provider costs do not automatically mean proportionately lower customer prices: a provider with pricing power may retain some efficiency gains.

A familiar comparison is the advertised price per kilogram of payload. That calculation is meaningful only when the quoted price and payload capacity refer to the same mission configuration and destination. A maximum payload in an expendable configuration to LEO cannot legitimately be divided into a price quoted for a different geosynchronous-transfer mission and presented as the price of reusable LEO delivery.

SpaceX's published Falcon 9 capabilities brochure gives a standard commercial price of $74 million under specified conditions through 2026 and describes the associated mission assumptions. It does not disclose a directly comparable internal cost per flight. Rocket Lab's filing for the nine months ended September 2026 reports average revenue of $8.7 million and a cost of $4.9 million per Electron launch under its management definitions, implying a simplified launch-level contribution of about 43.7% of revenue. That is not the company's consolidated operating margin.

Vehicles

Vehicle or Provider	Market Role	Economic Evidence and Limitation
SpaceX Falcon 9	Reusable medium-lift launch; large constellations and third-party payloads	Published customer price; internal launch cost not publicly established on a comparable basis
SpaceX Falcon 9	Higher-capacity and higher-energy missions	Customer terms depend on mission; do not infer margin from advertised capacity
Rocket Lab Electron	Dedicated small-payload launch	Company-reported average revenue and cost per launch, with defined scope
ULA Vulcan Centaur	Government and commercial medium/heavy missions	Internal economics not comparably disclosed
SpaceX Starship	Developmental high-capacity transportation	Future cost/kg remains a scenario, not a demonstrated commercial rate
Rocket Lab Neutron	Planned reusable medium-lift offering	Contracted pricing and targets are not demonstrated operating economics

Sources: SpaceX, Capabilities and Services: https://www.spacex.com/assets/media/Capabilities%26Services.pdf
Rocket Lab, Form 10-Q, quarter ended September 30, 2026: https://www.sec.gov/Archives/edgar/data/1819994/000181999426000074/rklb-20260930.htm

Elon Musk has repeatedly noted that "space is hard," a point he has also made about rockets and Starship, across interviews and social media posts.

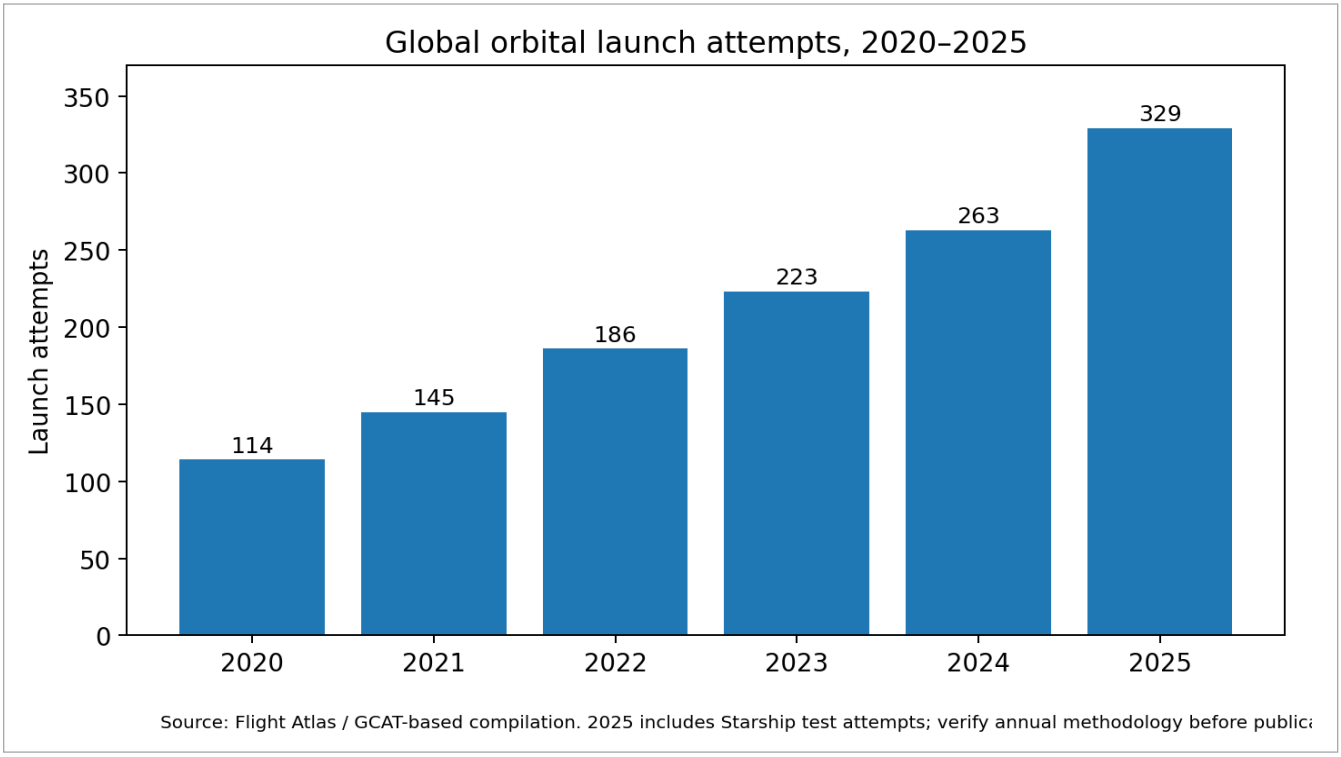
Launch Counts And Payload Mass Measure Different Things; Reliability Matters As Much As Price

The global industry now includes significant U.S. and Chinese activity, alongside established Russian, European, Indian, and Japanese programs, as well as emerging providers. However, countries' launch totals are not necessarily comparable across datasets. A catalogue may assign nationality by launch site, vehicle, operator, or ownership; some include developmental tests that others exclude.

Launch counts also tell only part of the story. The mass delivered to orbit measures a different aspect of capacity. A provider transporting many tonnes of satellites in a single mission contributes more orbital mass than a provider launching one small spacecraft. The research package's preliminary Flight Atlas figures indicate that SpaceX accounted for a substantially greater share of delivered payload mass than of launch attempts in 2025. Any published comparison should use the same catalogue conventions.

Reliability is equally important. A lost payload can outweigh a modest saving in launch price. Any vehicle reliability table should state the percentage of fully successful missions divided by total attempts, distinguish partial successes, and separate orbital missions from developmental suborbital tests. We have not yet reconciled a complete lifetime record for each vehicle, so exact percentages should not be considered as final.

2020–2025 Launch Activity



Source: Flight Atlas, 2025 and 2026 launch statistics: https://www.flightatlas.org/history/2025/statistics; https://www.flightatlas.org/history/2026/statistics

Further Cost Reductions Could Expand The Set Of Viable Activities, But The Size Of That Expansion Is Still A Scenario

Lower transportation prices could make it economical to launch larger spacecraft, replace satellites more often, and construct orbital infrastructure. Further reductions might support new industries in manufacturing, computing, and lunar logistics. But forecasts depend on assumptions about vehicle reuse, refurbishment, flight frequency, payload utilization, and competition. They should be considered as scenarios rather than promises.

The launch revolution matters not only because rockets can become profitable businesses. Its greater consequence may be to enlarge the set of activities that can profitably take place beyond Earth.

4. The Companies

Space Businesses Have Very Different Revenue Models: Launch, Recurring Satellite Services, Manufacturing And Pure Exploration

The space economy contains businesses with very different revenue models. Launch providers are paid to transport payloads. Satellite operators may earn recurring communications or data revenue. Manufacturers sell spacecraft, components, and services to commercial and government customers. Some exploration companies are still dependent on a limited number of contracts and development programs.

Launch Services

These companies transport satellites and other payloads into space; demand, reliability, capacity, cadence, and reusability influence their economics.

Launch-Services Companies

Ticker	Company	Principal Space Activities
SPCX	SpaceX	Falcon launches, Starship development, Starlink satellite network
RKLB	Rocket Lab	Electron launches, Neutron development, spacecraft and components
FLY	Firefly Aerospace	Launch services, lunar transportation and related spacecraft

Source: Bloomberg, November 17, 2026

Satellite Communications

These businesses provide broadband, mobile, aviation, maritime, government, or other communications using satellite networks.

Satellite Communications Companies

Ticker	Company	Principal Space Activities
ASTS	AST SpaceMobile	Direct-to-device satellite mobile connectivity
GSAT	GlobalStar	Mobile satellite and emergency communications
ECHO	EchoStar	Satellite communications and related networks
VSAT	Viasat	Aviation, maritime, broadband and government communications
IDRM	Iridium Communications	Global satellite voice, data and connected-device services
TSAT	Telesat	Satellite communications and Lightspeed development

Source: Bloomberg, November 17, 2026

Earth Observation And Data

These companies collect imagery or signals from space and provide information or analytics to commercial and government customers.

Earth Observation Companies

Ticker	Company	Principal Space Activities
PL	Planet Labs	Frequent Earth imagery and geospatial information
HAWK	HawkEye 360	Radio-frequency signal detection and geospatial intelligence
BKSY	BlackSky Technology	Earth-imaging and geospatial monitoring
VSAT	Satellogic	Earth-imaging spacecraft and data
IDRM	Spire Global	Satellite-derived weather and maritime information

Source: Bloomberg, November 17, 2026

Infrastructure, Manufacturing And In-Space Services

These suppliers make spacecraft, components and supporting systems, or develop technologies for operations after launch.

Infrastructure And Manufacturing Companies

Ticker	Company	Principal Space Activities
KRMN	Karman Space & Defense	Specialized propulsion-related systems and structures
RDW	Redwire	Spacecraft infrastructure, components and in-space technology
YSS	York Space Systems	Satellite platforms and mission systems
SIDU	Sidus Space	Spacecraft manufacturing and space-based services
KULR	KULR Technology	Thermal and battery-related technology with aerospace applications
MNTS	Momentus	In-space transportation and orbital services

Source: Bloomberg, November 17, 2026

Lunar Exploration And Suborbital Activities

Lunar firms develop transportation and supporting systems for activity beyond Earth orbit. Suborbital businesses operate vehicles that reach high altitude without remaining in orbit.

Lunar And Suborbital Companies

Ticker	Company	Principal Space Activities
LUNR	Intuitive Machines	Lunar landers and exploration infrastructure
VOYG	Voyager Technologies	Space infrastucture and commercial space-station initiatives
SPCE	Virgin Galactic	Suborbital human spaceflight

Source: Bloomberg, November 17, 2026

Large Aerospace Contractors Have Space Exposure, But Space Is Usually Only Part Of Their Business

These companies have established customers and substantial capabilities, but space is generally only part of their operations.

Major Aerospace And Defense Companies

Ticker	Company	Principal Space Activities
LMT	Lockheed Martin	Spacecraft, satellites and launch-related participation
NOC	Northrop Grumman	Spacecraft, propulsion and national-security systems
BA	Boeing	Spacecraft, satellites and launch-related participation
RTX	RTX	Sensors, electronics and aerospace systems
LHX	L3Harris Technologies	Space sensors, communications and propulsion
LDOS	Leidos	Space mission engineering, software and support

Source: Bloomberg, November 17, 2026

Companies With Indirect Space Exposure

Ticker	Company	Principal Space Activities
AMZN	Amazon	Amazon Leo satellite broadband development
AAPL	Apple	Satellite-enabled consumer-device features
TMUS	T-Mobile US	Satellite-to-mobile partnership with Starlink

Source: Bloomberg, November 17, 2026

Foreign Competition

Important international participants include Airbus, Thales, Leonardo, OHB, Mitsubishi Heavy Industries, and MDA Space, alongside government and commercial launch and satellite organizations in China, India, Japan, Europe, and elsewhere. They influence competition, supply chains, and pricing. National-security restrictions and domestic procurement policies also limit the extent to which space markets are globally interchangeable.

5. How Can Investors Participate?

Industry Growth Does Not Guarantee That Individual Companies Or Their Stocks Will Succeed

The growth of an industry does not ensure that all companies in this space will survive, earn attractive returns, or reward shareholders. Emerging space businesses may require repeated financing before they become profitable, and technological leadership can change rapidly. A company can succeed operationally while its stock disappoints because expectations were already reflected in its valuation.

A diversified ETF is often more practical than single-stock selection, but many "space" ETFs are concentrated or dominated by traditional aerospace.

A diversified exchange-traded fund may be a more practical way to obtain exposure than selecting individual emerging companies. An ETF spreads company-specific risk, although it does not eliminate sector-wide declines, valuation risk, or exposure to common technologies and customers. Nor does an ETF automatically provide meaningful diversification: some portfolios are concentrated in a few holdings or invest heavily in traditional aerospace rather than emerging commercial space.

Individual Equities

SpaceX (SPCX) and established aerospace contractors merit separate consideration because of their scale, businesses, and competitive positions. But scale does not eliminate investment risk, particularly if the purchase price assumes exceptional future growth. Smaller launch, satellite communications, Earth-observation, and infrastructure companies may offer more direct exposure to new markets, often with greater financing and execution risk.

For Unprofitable Companies A Conventional P/E Is Not Meaningful; Cash Needs And Dilution Matter More

For profitable companies, investors can compare earnings per share (EPS), price-to-earnings ratios (P/E), and forward earnings estimates, stating the forecast period. A conventional P/E is not meaningful for companies with negative earnings. For these businesses, cash requirements, dilution, and the path toward profitability may be more informative than an apparently precise valuation multiple.

Specialized And Broader ETFs

Specialized funds seek exposure to commercial space, satellites, launch services, and related technology. Broader aerospace and defense funds hold established contractors with varying degrees of direct space exposure. The two groups should not be treated as interchangeable.

ETFs With Significant Space Exposure

Ticker	ETF Name	Price	AUM ($M)	Expense Ratio	Investment Focus
Space ETFs					
NASA	Tema Space Innovators ETF	$19.87	$928	0.75%	Broad space-related equities, domestic and foreign
UFOX	Defiance Space & Connective Tech ETF	$72.64	$749	0.30%	Space companies plus connective technology enablers
ARKX	ARK Space & Defense Innovation ETF	$28.05	$619	0.75%	Actively managed space exploration and innovation
UFO	Procure Space ETF	$39.54	$424	0.75%	Satellite technology and commercial space businesses
WARP	VanEck Space ETF	$17.73	$41	0.50%	MarketVector Space Index; pure-play space companies
ROKT	SPDR S&P Kensho Final Frontiers ETF	$97.85	$145	0.45%	Deep space and deep sea exploration innovators globally
FSPC	First Trust Bloomberg Space Economy ETF	$16.67	$2	0.65%	Bloomberg Space Economy Index; broad space economy
Small Space ETFs					
MARS	Roundhill Space & Technology ETF	$21.55	$40	0.75%	Actively managed space and technology equities
ORBX	Global X Space Tech ETF	$35.28	$36	0.50%	Global X Space Tech Index; space technology enablers
Broader Aerospace & Defense ETFs					
ITA	iShares U.S. Aerospace & Defense ETF	$69.75	$12,009	0.38%	Dow Jones U.S. Select Aerospace & Defense Index
PPA	Invesco Aerospace & Defense ETF	$154.70	$7,411	0.58%	Defense, homeland security, and aerospace manufacturers
XAR	SPDR S&P Aerospace & Defense ETF	$222.52	$5,089	0.35%	S&P Aerospace & Defense Select Industry Index

Source: Bloomberg, November 17, 2026

The ETFs listed are provided for informational purposes only. Inclusion is based on exposure to the aerospace sector, not investment merit, and should not be construed as a recommendation to buy, sell, or hold any particular investment. The list is not intended to include all available aerospace ETFs. Consult with your financial professional before making any investment decisions.

The most important comparison is what the investor actually owns. Funds may differ substantially in the share of their portfolios invested in satellite operators, launch providers, suppliers, traditional contractors, and businesses with only indirect exposure to space. Holdings can change, and fees can vary. An ETF's name alone is insufficient evidence of its investment exposure. Before purchasing any fund, investors should still review the fund's holdings, concentration, trading liquidity, and expenses.

6. Opportunities And Risks

Near-Term Commercial Opportunities Are Concentrated In Connectivity, Earth Observation And National-Security Demand

The next stage of the space economy could be supported by lower launch costs, expanding satellite networks, and improved spacecraft capabilities. The opportunity is real, but its commercial development will be uneven. Established markets should be distinguished from activities still requiring technical demonstrations or substantial infrastructure.

Principal Opportunities

Satellite Connectivity could extend broadband and mobile services to remote areas, ships, aircraft, and emergency situations. Direct-to-device communications may broaden the addressable market, although network capacity, economics, and competition will determine returns.

Earth Observation and Analytics could benefit from more frequent satellite measurements and the application of artificial intelligence to images, weather data, and radio signals. Recurring information services may prove more valuable than selling individual observations.

National Security provides continuing demand for resilient communications, navigation, surveillance, and missile warning. Government customers can support industry development, but contracts remain exposed to budget and procurement decisions.

Orbital Servicing, Manufacturing, and Infrastructure may benefit from lower transportation costs and advances in robotics, power, and spacecraft design. The economics of large orbital data centers, space-based solar power, and most extraterrestrial resource extraction remain uncertain.

Lunar Transportation and Support Services may expand as exploration programs require communications, navigation, landing systems, and infrastructure. Government demand is likely to precede broad private commercial markets.

The Largest Risks Are Execution Failures, Repeated Financing And Dilution, Price Competition, And Orbital Debris

Execution and Reliability. Launch failures and spacecraft malfunctions can destroy expensive assets or delay an entire project. A successful demonstration does not prove that a service can operate reliably and profitably at scale.

Financing and Dilution. Launch vehicles, satellite networks, and orbital infrastructure require large initial investments. Additional share issuance can dilute existing investors, even if the business continues to advance technically.

Competition and Pricing. Falling launch costs can enlarge demand while compressing prices and margins for providers. Similar pressures can affect satellite communications and Earth-observation data.

Regulation and Geopolitics. U.S. commercial launches and reentries require FAA authorization; other requirements govern spectrum, remote sensing, export controls, and national-security activities. Restrictions on technology transfers and market access can complicate global expansion.

Orbital Congestion and Debris. More spacecraft increase the need for collision avoidance and responsible disposal. ESA warns that debris can generate further collisions, a potential self-reinforcing process called Kessler syndrome, which could make some orbital regions increasingly difficult to use.

Valuation and Concentration. SpaceX's competitive advantages do not ensure attractive returns at every share price. Smaller firms may face greater survival risk; specialized ETFs may still be concentrated in the same companies or economic exposures.

Indicators Of Progress

Investors should watch measurable commercial developments: launch cadence and reliability, payload mass delivered, customer prices and provider costs where disclosed, satellite-network utilization, recurring revenues, operating profitability, and capital required for expansion. Announcements of ambitious projects are less informative than repeatable commercial performance.

Technological Achievement, Commercial Profitability, and Attractive Shareholder Returns Are Three Different Things

Space is already essential to the terrestrial economy. Reusable launch systems could broaden the range of economically practical activities, potentially creating markets that are small or nonexistent today. But the industry's growth will not guarantee the survival of individual companies or attractive investment returns. Diversification and valuation discipline may be as important as technological promise.

Remember: **Technological achievement, commercial profitability, and attractive shareholder returns are three different things.**

Glossary

Aerospace and Defense Contractor. A company supplying aircraft, spacecraft, military systems, or related technology; often has substantial non-space operations.

AUM (assets under management). The market value of assets managed by an investment adviser or fund.

Cislunar Space. Broadly, the region between and around Earth and the Moon; no universally agreed boundary.

Constellation (satellite). A coordinated group of satellites providing coverage or observations as a network.

EAR (Export Administration Regulations). U.S. controls applying to many commercial and dual-use goods, software, and technologies.

EPS (earnings per share). A company's earnings attributable to each share, generally for a stated reporting period.

Expense Ratio. A fund's annual operating expenses expressed as a percentage of assets.

Geostationary Orbit (GEO). Circular equatorial orbit approximately 35,786 km above Earth; a satellite appears fixed over one location.

Geosynchronous Orbit. Orbit whose period matches Earth's rotation; need not appear stationary in the sky.

Gross Margin. Revenue minus cost of revenue, divided by revenue. Scope and accounting definitions matter.

High-Energy Trajectory. A route requiring more propulsion energy than a typical LEO mission, often toward distant orbits or the Moon.

ITAR (International Traffic in Arms Regulations). U.S. controls on specified defense articles, technical data and defense services.

Kármán Line. Widely used conventional boundary of space, 100 km (62 miles) above sea level; not a universal legal boundary.

Kessler Syndrome. A potential cascade in which orbital collisions generate debris that causes further collisions.

Kilogram (kg). Metric unit of mass, approximately 2.2 pounds.

Kilometer (km). Metric unit of distance, approximately 0.621 mile.

Lagrange Points (L1–L5). Five locations associated with two orbiting bodies where their combined gravity and orbital motion allow a smaller object to maintain a roughly fixed position relative to the bodies. L1–L3 are dynamically unstable and require station-keeping for nearby spacecraft; L4–L5 can be stable under suitable conditions. Spacecraft often orbit near these points rather than remain exactly at them.

Launch Cadence. Frequency of a provider's launches during a defined period.

LEO (low Earth orbit). Earth orbit generally below 2,000 km altitude.

MEO (medium Earth orbit). Earth orbit above LEO and below geosynchronous altitude.

Metric Ton (Tonne). 1,000 kg, approximately 2,200 pounds or 1.1 U.S. short tons.

Near Space. Context-dependent term; may describe the upper atmosphere or a much broader region near Earth in particular NASA usages.

Orbital Insertion. A propulsion maneuver that places a spacecraft into an initial or intended orbit.

P/E (price-to-earnings ratio). Share price divided by earnings per share for a specified period; not meaningful when earnings are negative.

Payload. Satellite, spacecraft, equipment, or other cargo carried by a launch vehicle.

Polar Orbit. Orbit passing over or near Earth's poles.

Reusability. Recovery and repeated use of launch vehicle hardware.

Rideshare. A launch mission carrying payloads from multiple customers on one vehicle.

Station-Keeping. Small propulsion maneuvers used to maintain a spacecraft's intended orbit or position.

Suborbital Flight. A flight that does not achieve a sustained orbit.

Sun-Synchronous Orbit. Orbit arranged to pass over a location at approximately the same local solar time on each pass.

Transfer Orbit. Intermediate orbit used to reach a final destination.

Upper Stage. Rocket stage that operates after lower stages separate, often placing payloads into orbit or onto transfer trajectories.



Last Words

Our near-term view involves continued volatility in the equity market. Inflation has not yet eased enough for the Federal Reserve to declare victory, oil markets remain vulnerable to geopolitical shocks, and the AI complex is digesting both a leadership transition at its most visible company (NVIDIA (NVDA)) and a deceleration in earnings growth, slowing capital-expenditure growth, and questions about future spending. But we view this as a cyclical pause, or mid-cycle slowdown, and expect the secular bull market to resume in 2027.

Key Risks

- Further upside surprises in inflation that force additional Fed tightening, or a Fed policy action that slows the economy too much.
- A sustained rise in oil prices resulting from depleted inventories and geopolitical disruption.
- A deeper correction in the Nasdaq 100 while hedge-fund positioning remains long the Nasdaq 100.
- Analysts beginning to lower their earnings estimates.
- Execution, financing, or valuation disappointment among either pure technology cyclicals or emerging space companies.

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