

Commentary

History Suggests Defense Stocks Will Surge in 2022. Will It Come To Pass?

Investors in defense stocks have continued to see their portfolio grow but compared to those investing in the broader market, they have significantly underperformed. Our thesis maintains that defense stocks are set to surge in 2022 and investors should consider going long. We've begun to see an uptick in the volume for the Invesco Aerospace and Defense ETF (NYSE: PPA) in recent months. And looking at the various ETF products in this thematic area, it is interesting that AUM (asset under management) levels have plateaued and been stable at these levels. It is perhaps a sign that everyone who wanted to sell, has done so. The sector appears to be just waiting for buyers to rediscover it.

Before discussing why 2022 could be the year for defense stocks, it's important to understand the reasons why the prior year was comparably lackluster. In 2021, the SPADE Defense Index returned more than 7% including dividends. To put that in perspective, it was a down year for defense relative to the broader market but consistent with the historical return for equities.

Over the past couple of years, the attention of most investors, and people in general, centered on the pandemic, and rightly so. Focusing on the disruptions to the economy and the technologies that would enable us to work and interact more remotely proved to be highly profitable. As did investments that tried to time the recovery. However, market gains have been uneven with a few companies driving the broader markets higher. Many investors today are wondering how much growth is left in these stocks. But when it came to the defense, since 2020 there were few events to really drive it higher. Additionally, the sector faced headwinds that they might have been able to overcome more rapidly were it not for the pandemic.

To address this in more detail...over the past several years, defense budgets in the United States have remained strong and stable but there was little positive news to provide fuel to the sector after eight consecutive years of returns that beat the market. Right before the pandemic, Boeing was investigating the flight worthiness of its new 737 MAX 8 aircraft following two crashes that put deliveries on hold. Were it not for the pandemic—the review, testing, engineering changes,

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SPADE Defense Index Statistics

| | |
|----------------|---------|
| 12/30/21 Close | 8456.65 |
| 12/31/20 Close | 7932.14 |

| | |
|-------------------------|---------|
| All-time Intraday High: | |
| 8 June 2021 | 9064.68 |

| | |
|------------------------|---------|
| All-time Closing High: | |
| 8 June 2021 | 9050.45 |

| | SPADE Defense | S&P500 |
|-------------|---------------|--------|
| 2021 | 6.61% | 26.89% |
| 4Q21 | 0.51% | 3.49% |

**SPADE Defense Index
December 2021 Rebalance**

No changes were made to the index during the most recent quarterly rebalance.

Corporate Actions Affecting the Index During the Quarter

- Mandiant spun off its FireEye division. Its ticker changed from FEYE to MNDR.
- Lockheed Martin's acquisition of Aerojet Rocketdyne is pending.

Dividend

Invesco's Aerospace & Defense ETF issued a dividend of \$0.092 on December 20.

A complete archive of *The SPADE Investor* including our commentaries and industry data can be found at—

[www.spadeindex.com / defense](http://www.spadeindex.com/defense)

Licensed Products

Exchange Traded Fund (ETF)

The SPADE Defense Index has been licensed to Invesco and serves as the underlying index for the Invesco Aerospace & Defense ETF (NYSE Arca: PPA).

Options Trading

Options on the Invesco Aerospace and Defense ETF (ticker: PPA) began trading in November 2019.

Commentary (continued from page 1)

and approval for the plane to return-to-flight might have happened more quickly. But with a dramatic reduction in the need for commercial air travel and cargo transport due to a slowing global economy—and the key word here is need—the approval stretched on for months. The impact of this was felt hard across the sector as many defense contractors and suppliers participate in the production of aircraft, helicopters, and related vehicles. This led to sporadic supply chain issues and, with Boeing holding off on delivering commercial aircraft, manufacturing activity slowed. The latter half of 2021 saw the return to more normal production levels, the delivery of aircraft, and new orders coming in from airlines. As we begin to emerge, or at least get used to, living life under a pandemic, air travel is making progress toward a return to normal. While still far from pre-pandemic levels, a growing air traffic market will solidify the balance sheets of world's airlines—providing them with the resources needed to modernize and upgrade their air fleets.

One benefit of the pandemic was that nations around the globe were more focused on managing the internal medical and societal issues related to COVID-19 and less interested in border and international conflicts. Or at least, the mainstream media covered these less. Even the pullout of US troops from Afghanistan quickly left the news cycle. But the trade statistics confirm it was a quiet period for military action and planning. According to the US State Department, sales of US military equipment to foreign governments during FY20 fell 21% to \$138 billion after rising for the past decade.

However, as we venture into the early part of 2022, this is changing. Tensions in areas around the world are beginning to rise. Russia has moved troops to the Ukrainian border and supplied peacekeepers to Kazakhstan. China and the US appear to be expanding their cold war rhetoric and there are rising concerns that 2022 could be the year that China annexes Taiwan. And the stress of pandemic inequalities is seeing increasing unrest in the Middle East as well as social unrest here in the United States. This return to fear and uncertainty is a business environment that should directly impact defense firms and translate into a return to the international sales growth that the sector has seen in recent years. The reaction by France to an announced partnership between the US and the United Kingdom with Australia on submarine development highlights just how important international defense sales are to maintaining a healthy industrial base.

With stable military budgets in the United States, expanding international defense sales, and a return to an expansion phase for commercial aircraft deliveries, we see 2022 being a great one for defense stocks.

**A Mounting 2022
Geopolitical and Economic
Wall of Worry
(in no particular order)**

- China annexes Taiwan
- Russia invades Ukraine
- Russia invades Kazakhstan
- Russian submarines disrupt undersea communications cables (a concern raised by the UK)
- Mid-East conflagration (pick your combatants)
- A worsening China-US cold war relationship impacts currency / debt markets
- President Joe Biden takes ill
- US social unrest leads to armed conflicts or terrorism
- North Korea saber rattling.
- Iran's nuclear development
- Afghanistan: The crisis after the conflict. What direction does it take?
- A significant cyber war incident traced to a nation/state
- Congress targets defense spending to pay for social programs
- New variant of COVID has Omicron-like spread but more deadly
- Inflation (how fast, how high)
- Rise of fascist-leaning political leaders worldwide
- Terrorist incidents targeting Western nations, delayed by COVID travel restrictions, take place.

Download a free copy of our 56-page guide,
Investing in Defense Sector Guide

https://spadeindex.com/Files/Investing_Defense_Sector_Guide.pdf



Historical Data Back This Thesis

The SPADE Defense Index has performance data on the sector back to 1997 and using this we have identified two previous cycles. In 1998 and 1999, defense stocks underperformed the return of the S&P500 by more than 24%—though it produced a positive return of 23% over those two years. What followed was a nine-year run higher which saw the defense sector outperform the market by several hundred percent. This was followed by a three-year period of underperformance of around 8%—but which saw the SPADE Defense Index gain 30%. This was subsequently followed by eight consecutive years in which the defense sector gained more than 200%, outperforming the market by more than 70% before the current 2020-2021 underperformance—during which time, the index still rose more than 13%.

| | DXS Return | DXS vs S&P500 |
|-----------|------------|---------------|
| 1998-1999 | 22.96% | 51.41% |
| 2000-2008 | 61.92% | [38.53%] |
| 2009-2011 | 29.75% | 39.22% |
| 2012-2019 | 284.84% | 156.90% |
| 2020-2021 | 5.83% | 47.52% |

These are a lot of numbers, but what the pattern says is after a 2–3-year decline, defense stocks have historically come roaring back and produced outsized returns for a number of years. Even during the years that defense stocks underperformed the market, those who invested in a portfolio of aerospace and defense stocks still managed a pos-

itive return most of the time. In 19 of the past 25 years, the SPADE Defense Index has been positive—with half the years providing double digit gains. And of the five calendar years that the Index levels declined, three were by less than 3%. Growth while waiting for a reversion to the historical mean could be a winning strategy.

So, what can derail it?

There are of course a number of external factors that bear watching. A broad stock market drop due to a declining economy or rising interest rates could pull all securities lower in the short-term. However, over the long term, defense stocks as a whole tend to be less sensitive as (a) its largest customer—government—can literally print new money; (b) defense firms typically maintain low debt ratios, which should protect them from rising interest rates; and (c) many defense contracts come with inflation escalation clauses. As to what would derail the sector over a longer period, the key is political will and whether Congress would reduce spending on defense and security in order to fund new social programs. While a minority in office favor doing just this, they are still just a small minority. Yet, as US politics has revealed, sometimes a minority can direct the agenda and rule. Security and the safety of the nation has never been out of favor for long.

Conclusion

There are a number of trends that indicate that defense investors are about to be rewarded for their patience. In the short-term, of course, the sector could still head lower, but in my belief that investors have ignored defense in their portfolio for too long.

4Q21 Leaders

| | | |
|----|------------------|--------|
| 1 | PAE Systems | 66.05% |
| 2 | Keysight Tech. | 25.70% |
| 3 | Kaman | 20.97% |
| 4 | KBR | 20.86% |
| 5 | AAR Corporation | 20.35% |
| 6 | Elbit Systems | 20.22% |
| 7 | Mercury Computer | 16.11% |
| 8 | Textron | 10.59% |
| 9 | Oshkosh Truck | 10.10% |
| 10 | Curtiss Wright | 9.90% |

4Q21 Laggards

| | | |
|----|--------------------|----------|
| 1 | Telos Corp. | [45.74%] |
| 2 | Aerovironment | [28.14%] |
| 3 | Palantir | [24.25%] |
| 4 | Viasat | [19.12%] |
| 5 | CAE | [15.50%] |
| 6 | Kratos Defense | [13.04%] |
| 7 | Hexcel | [12.78%] |
| 8 | RADA | [11.47%] |
| 9 | AXON International | [10.30%] |
| 10 | Vectrus | [8.97%] |

Morningstar Says:

PPA is a Four-Star Fund ****
Below Avg Risk in the Industrials Category,

2021 Results

| | | |
|----|--------------------|--------|
| 1 | Textron | 59.74% |
| 2 | Keysight Tech. | 56.34% |
| 3 | KBR | 53.96% |
| 4 | Triumph Group | 47.53% |
| 5 | General Dynamics | 40.08% |
| 6 | Viasat | 36.42% |
| 7 | Elbit Systems | 33.13% |
| 8 | Oshkosh Truck | 30.95% |
| 9 | AXON Int'l | 28.13% |
| 10 | Jacobs Engineering | 27.78% |
| 11 | Northrop Grumman | 27.02% |
| 12 | Raytheon Tech | 20.35% |
| 13 | Curtiss Wright | 19.18% |
| 14 | Comtech | 14.50% |
| 15 | L3 Harris | 12.81% |
| 16 | Howmet | 11.53% |
| 17 | Teledyne Tech | 11.46% |
| 18 | Spirit Aerosystems | 10.23% |
| 19 | Huntington Ingalls | 9.54% |
| 20 | Heico | 8.93% |
| 21 | PAE Systems | 8.17% |
| 22 | CACI Int'l | 7.97% |
| 23 | AAR Corp | 7.76% |
| 24 | Hexcel | 6.83% |
| 25 | Iridium | 4.98% |
| 26 | Ball Corp. | 3.32% |
| 27 | Transdigm | 2.82% |

| | | |
|----|--------------------|----------|
| 28 | Moog | 2.11% |
| 29 | Lockheed Martin | 0.12% |
| 30 | OSI Systems | [0.02%] |
| 31 | Honeywell Intl | [1.97%] |
| 32 | Booz Allen | [2.74%] |
| 33 | RADA Electronics | [3.38%] |
| 34 | ATI | [5.01%] |
| 35 | Boeing | [5.95%] |
| 36 | Parsons | [7.58%] |
| 37 | Vectrus | [7.94%] |
| 38 | CAE | [9.01%] |
| 39 | Woodward | [9.93%] |
| 40 | Aerojet Rocketdyne | [11.52%] |
| 41 | SAIC | [11.68%] |
| 42 | Ducommun | [12.91%] |
| 43 | Leidos | [15.43%] |
| 44 | Mantech | [18.00%] |
| 45 | BWX Technologies | [20.57%] |
| 46 | Palantir | [22.68%] |
| 47 | Maxar Technologies | [23.48%] |
| 48 | Mandiant | [23.94%] |
| 49 | Kaman | [24.47%] |
| 50 | AeroVironment | [28.62%] |
| 51 | Kratos Defense | [29.27%] |
| 52 | Mercury Computer | [37.47%] |
| 53 | Telos Corporation | [53.24%] |

**ETF Statistics (NYSE Arca: PPA)
Invesco Aerospace & Defense**

| | |
|---------------------------|---------------|
| Exchange / Ticker Symbol: | NYSE / PPA |
| Assets (12/31/21) | \$653 M |
| Closing Price (12/31/21) | \$72.25 |
| Dividend Yield* | 1.25% |
| 4Q21 Volume** | 1,233,600 |
| Turnover* | 22% |
| Morningstar Rating | **** (4 Star) |

source: * Morningstar & ** Yahoo Finance 12/31/21

| | | | |
|----------------|------|------|-------|
| Capture Ratio* | 3-Yr | 5-Yr | 10-Yr |
| Upside | 91 | 103 | 105 |
| Downside | 114 | 118 | 79 |

| | |
|--|--------|
| Portfolio Price / Earnings* | 19.22 |
| Portfolio Price / Book* | 2.94 |
| Portfolio Price / Sales* | 1.63 |
| Portfolio Price / Cash Flow* | 13.58 |
| Beta (3-year) * | 1.17 |
| Alpha (3-years)* | [7.03] |
| R-squared (3 years)* | 71.98 |
| Sharpe Ratio* | 0.66 |
| Long-Term Earnings* | 12.55% |
| Historical Earnings* | 5.11% |
| Sales Growth* | 0.29% |
| Cash Flow Growth* | 9.41% |
| Book Value Growth* | 7.49% |
| Historical Sustainability Score (% Rank) | 82 |

source: * Morningstar 12/31/21

By the Numbers

\$1.4 Trillion – Boeing estimate of commercial aircraft need for the Middle East over the next two decades.

\$777.7 Billion – National Defense budget (NDAA bicameral agreement funding topline).

\$400 Billion – Boeing estimate of commercial aircraft need by Africa by 2040; a total of 1,030 aircraft.

\$15 Billion – A 10-year contract from Defense Logistics Agency to Boeing for supply chain and logistics services supporting aircraft.

\$12 Billion – Finland joined the global F-35 alliance and plans to acquire 64 F-35A aircraft from Lockheed Martin.

\$10.9 Billion – A 10 year USAF contract to Lockheed Martin to update and maintain the F-22 Raptor fighter aircraft.

\$9 Billion – Akasa Air to Boeing for 72, 737 MAX aircraft.

\$8 Billion – Defense Logistics Agency to Raytheon for Patriot weapons systems support over the next 10 years.

\$6.9 Billion – Greece to Lockheed Martin for four Hellenic Future Frigates and an update to the MEKO-class Frigates. Raytheon is among the firms involved with the frigate modernization.

\$5 Billion – Allegiant Air is close to finalizing an order for 50 Boeing 737 Max aircraft.

\$3.8 Billion – Requested by the Defense Department for hypersonic weapons development.

\$3.1 Billion – Israel agreed to purchase two Boeing KC-46 tanker aircraft and a dozen CH-53K helicopters.

\$2.4 Billion – The USAF issued combined contract modification for prototyping work to Boeing, Northrop Grumman, Lockheed Martin, Raytheon, L3 Harris, and Booz Allen, among others.

\$1.1 Billion – From the US Army to Boeing for continued production of PAC-3 missiles.

\$985 Million – Australia to purchase 12 Sikorsky MH-60R Seahawk helicopters.

\$847 Million – Lockheed Martin will begin procuring components for 105 F-35 aircraft to fill an order from the US Naval Air Systems Command

\$737 Million – The Space Force to Lockheed Martin for three GPS 3F Satellites.

\$650 Million – Saudi Arabia to Raytheon for 280 AIM-120C air-to-air missiles.

\$578.3 Million – US Navy to Raytheon for Standard Missile-2.

\$471 Million – Japan to Boeing for F-15 Super Interceptors.

\$447.6 Million – US Navy to Pratt & Whitney for maintenance work on fleet aircraft engines.

\$438 Million – US Air Force to Northrop Grumman for modifications to support MQ-4C Triton and RQ-4B Global Hawk.

\$353.6 Million – France to Northrop Grumman for a trio of E-2D Advanced Hawkeye carrier-borne aircraft for the French Navy

\$366.46 Million – The US Naval Air Systems Command to Boeing to extend service life of 32 F/A-18E/F Super Hornet fighter jets by up to 10,000 hours.

\$298.2 Million – The USAF to Northrop Grumman for drone maintenance services.

\$269 Million – The US Naval Sea Systems Command to Raytheon for RIM-162 Evolved Seasparrow Missile Block.

\$212.6 Million – US Special Operations to Boeing for 6 MH-47G helicopters.

\$121 Million – US Space Force to L3 Harris to upgrade Block 10.2 Counter Communications Systems.

\$67 Million – Space Force to Raytheon to test its Electro-Optical Weather System prototype, designed as a successor to the Defense Meteorological Satellite Program.

* * *

Through November 2021, Boeing delivered 302 planes – more than double the pace of 2020.

Textron’s light aircraft is being made available to international buyers through the Defense Department’s Foreign Military Sales program.

The Sikorsky Black Hawk helicopter granted permission by the FAA to offer the S-70M variant for certain civil and commercial functions.

The KC-46A Pegasus tanker has been cleared to provide aerial refueling to additional aircraft including the AC-130J Ghost Rider, E-3G Sentry, and C-5M Super Galaxy

Raytheon acquired SEAKR Engineering and its 540 employees. The firm has a role in DARPA’s Project Blackjack

Mantech acquired Gryphon Technologies for \$350 million, adding 1,500 employees, the largest deal the firm has done. Gryphon has customers at the Navy, Air Force, DARPA, and MDA.

PPA Dividend History

| | | | |
|------|---------|------|---------|
| 2021 | \$0.426 | 2013 | \$0.383 |
| 2020 | \$0.598 | 2012 | \$0.444 |
| 2019 | \$0.651 | 2011 | \$0.199 |
| 2018 | \$0.444 | 2010 | \$0.155 |
| 2017 | \$0.363 | 2009 | \$0.202 |
| 2016 | \$0.708 | 2008 | \$0.145 |
| 2015 | \$0.501 | 2007 | \$0.055 |
| 2014 | \$0.215 | 2006 | \$0.051 |
| | | 2005 | \$0.022 |

**Total Price Return
(Annual %)**

| | |
|-----------|---------------------|
| | SPADE Defense Index |
| 1-Yr | 7.09% |
| 3-Yr | 14.53% |
| 5-Yr | 12.57% |
| 10-Yr | 16.16% |
| 15-Yr | 10.67% |
| Inception | 11.37% |

Through 12/31/21
(Morningstar)

Index Performance (ex div)

| | SPADE Defense Index | S&P500 | Alpha (bps) |
|------|---------------------|----------------|-------------|
| 2021 | 6.61% | 26.89% | [2028] |
| 2020 | [0.73%] | 16.26% | [1699] |
| 2019 | 38.49% | 28.88% | 961 |
| 2018 | [8.15%] | [6.24%] | 191 |
| 2017 | 28.92% | 19.43% | 949 |
| 2016 | 17.95% | 9.53% | 842 |
| 2015 | 3.23% | [0.73%] | 396 |
| 2014 | 11.77% | 11.39% | 38 |
| 2013 | 48.27% | 29.60% | 1867 |
| 2012 | 16.30% | 13.41% | 289 |
| 2011 | [2.75%] | [0.00%] | [275] |
| 2010 | 9.62% | 12.78% | [316] |

| | SPADE Defense Index | S&P500 | Alpha (bps) |
|------|---------------------|---------------|-------------|
| 2009 | 21.71% | 23.45% | [174] |
| 2008 | [38.03%] | [38.49%] | 46 |
| 2007 | 22.17% | 3.53% | 1864 |
| 2006 | 19.33% | 13.62% | 571 |
| 2005 | 5.30% | 3.00% | 230 |
| 2004 | 20.47% | 8.99% | 1148 |
| 2003 | 37.27% | 26.38% | 1089 |
| 2002 | [2.87%] | [23.37%] | 2050 |
| 2001 | 0.94% | [13.04%] | 1488 |
| 2000 | 4.98% | [10.14%] | 1512 |
| 1999 | 15.31% | 19.53% | [422] |
| 1998 | 6.63% | 26.67% | [2004] |

Price Return by Decade (ex div)

| | SPADE Defense | S&P500 | Alpha (bps) |
|------------------|----------------|----------------|-------------------------|
| 2010-2019 | 310.26% | 189.73% | 12,053 (120.53%) |
| 2000-2009 | 97.07% | -24.11% | 12,118 (121.18%) |

About the SPADE Defense Index

The SPADE Defense Index (NYSE: DXS) provides an investment benchmark for the value that the market ascribes to companies involved with defense and its homeland security, and space components.

The Index is designed to reflect the broad diversity of activities that is representative of companies involved with the sector—naval vessels, military aircraft, armored vehicles, helicopters, drones and remotely piloted vehicles, missiles and missile defense, command and control, secure communications, battlespace awareness, intelligence and reconnaissance, and space systems, as well as national/homeland security activities including border security, biometric screening systems, and military cybersecurity efforts.

SPADE Indexes specializes in designing and managing equity benchmarks for ETF and other products.

Rules

The SPADE Defense Index was designed to be RIC (registered investment company) compliant for the purpose of enabling financial products. Companies are required to meet an eligibility criteria that includes market valuation (>\$250M), listing on a major U.S. exchange, and have sufficient liquidity. Importantly, each firm must be considered systematically important to the defense of the United States and that their defense business is systematically important to the revenues and health of the firm. We follow an enhanced modified market cap methodology that employs the True Cap™ strategy, which enables the index to more accurately handle firms with diversified operations.

Full details are available at: www.spadeindex.com/defense

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