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**Commentary**

Since you are reading this, you likely haven't been hiding under a rock and know that aerospace and defense has been one of the best performing sectors since the 2016 presidential election. The Powershares Aerospace & Defense ETF (NYSE: PPA), which tracks our SPADE Defense Index, is up 24% since then and is at historic highs. In comparison the S&P500 has gained 15.5%. More importantly, for long-term investors, the SPADE Defense Index has gained 511% since 2000, outperforming the broader market by a staggering 433%.

Recently, US Defense Secretary Jim Mattis, reassured the House Armed Services Committee that “real growth” begins in 2019. He said that the budget released in May was just the first step as he did not have funding projections for the new levels of troops, ships, and jets that Trump has talked about. This military buildup will happen from 2019 through 2023. Joint Chiefs Chairman Gen. Joseph Dunford and Mattis said that to stay competitive the military needs 3-5% growth above inflation—roughly \$19B/yr.

While the election provides a demarcation line from which to evaluate interest in defense stocks, the reality is that the sector has been surging for nearly two decades. Still the election serves as a useful reminder than proposed defense and homeland security budgets in a Trump Administration are expected to grow in the coming years. Yet without the world being in conflict, the desire to increase the budget would fall on mostly deaf ears.

Turmoil around the world remains high with recent terrorist incidents in the United Kingdom. The U.S. is actively engaged in conflicts with a half dozen nations including Afghanistan, Iraq, Yemen, and Syria, and “cold war” conflicts with North Korea, China, and Russia.

There are enough incidents around the globe involving military or terrorist forces that one has to contemplate what it will take for the cycle to reverse and how long it will take to get there. Looking at the history of the United States, major global conflicts involving the U.S. have occurred on a regular basis since before the

**SPADE Defense Index Statistics**

6/30/17 Close 5331.58  
 12/31/16 Close 4859.74  
 All-time Intraday High: 5401.05  
 20 June 2017

All-time Closing High: 5396.27  
 19 June 2017

	SPADE Defense	S&P500
2Q17	5.43%	2.57%
YTD	9.71%	8.24%
2016	17.95%	9.54%

**SPADE Defense Index  
June 2017 Rebalance**

The following companies were added to the index

- NCI Inc (NCIT)
- VSE Corporation (VSEC)

**Corporate Actions Affecting the  
Index During the Quarter**

Taser changed its name to AXON and ticker to AAXN.

**Licensed Products**

**Exchange Traded Fund (ETF)**

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

**2Q17 Leaders**

1	Kratos	52.57%
2	Vectron	44.61%
3	NCI	40.20%
4	AeroVironment	36.28%
5	Comtech	28.70%
6	Triumph Group	22.72%
7	Transdigm	22.12%
8	FireEye	20.62%
9	Mantech Intl	19.49%
10	Ball Corp	13.68%

**2Q17 Laggards**

1	Heico	[17.61%]
2	Cubic	[12.31%]
3	Booz Allen	[8.05%]
4	Huntington Ingalls	[7.03%]
5	SAIC[6.69%]	[6.69%]
6	FLIR Systems	[4.47%]
7	Aerojet Rocketdyne	[4.15%]
8	Hexcel	[3.23%]
9	Harris Corp	[1.97%]
10	Engility	[1.87%]

**YTD Results**

1	Kratos	60.41%	28	Harris Corp	6.45%
2	Comtech	60.08%	29	Eaterline Tech	6.28%
3	NCI	51.25%	30	AAR Corp	5.17%
4	Aerovironment	42.38%	31	Teledyne Tech	3.78%
5	Mercury Computer	39.28%	32	AXON International	3.71%
6	Vectrus	35.51%	33	Hexcel	2.62%
7	FireEye	27.82%	34	Kaman	1.92%
8	Boeing Co	27.02%	35	Leidos	1.08%
9	BXW Technologies	22.80%	36	Huntington Ingalls	1.07%
10	Elbit Systems	22.38%	37	CACI	0.60%
11	Triumph Group	19.25%	38	Viasat	-0.03%
12	Digital Globe	16.023%	39	CSRA	-0.28%
13	VSE Corporation	16.17%	40	OSI Systems	-1.27%
14	Aerojet Rocketdyne	15.88%	41	Mantech Int'l	-2.06%
15	Honeywell	15.05%	42	Woodward	-2.13%
16	General Dynamics	14.73%	43	Textron	-3.01%
17	Raytheon	13.72%	44	Cubic Corp	-3.44%
18	Rockwell Collins	13.28%	45	FLIR Systems	-4.23%
19	Ball Corp	12.46%	46	Curtiss Wright	-6.69%
20	Orbital ATK	12.12%	47	Heico	-6.88%
21	United Technologies	11.39%	48	Sparton	-7.80%
22	Lockheed Martin	11.07%	49	KBR	-8.81%
23	Northrop Grumman	10.37%	50	Booz Allen	-9.79%
24	L-3	9.84%	51	Engility	-15.73%
25	Moog Inc.	9.20%	52	SAIC	18.14%
26	Transdigm	8.00%	53	Key W Holding	-20.70%
27	Oshkosh Truck	6.61%	54	Ducommon	

**ETF Statistics (NYSE: PPA)  
Powershares Aerospace & Defense**

Exchange / Ticker Symbol:	NYSE / PPA
Assets ( 6/30/17)	\$627 M
Closing Price (6/30/17)	\$45.91
Yield (TTM)	1.37%
2Q2017 Volume	5,634,500
Turnover	16%

source: Yahoo Finance 6/30/17

Portfolio Price / Earnings*	20.81
Portfolio Price / Book*	4.04
Portfolio Price / Sales*	1.56
Portfolio Price / Cash Flow*	13.31
Earnings Growth Rate*	9.87%
Beta (3 year)*	0.85
Alpha (3 year)*	9.38
R-squared (3 years)*	51.58

source: Yahoo Finance 6/30/17

**Commentary** (continued from page 1)

founding of the United States with the periods of prosperity between them of only 15-20 years at most.

1754-1763	French & Indian War
1755-1783	Revolutionary War
1798-1800	Franco-American Naval War
1812-1825	War of 1812
1836	War of Texas Independence with Mexico
1946-1848	Mexican American War
1861-1865	US Civil War
1898	Spanish American War
1914-1918	World War I
1929-1939	Depression begins
1935-1945	World War II
1950-1953	Korean War
1965-1975	Vietnam War
1970s	Fiscal Crisis
1980-1988	Cold War under Reagan
1990-1991	Persian Gulf War
1995-1996	Intervention in Bosnia/Herzegovina
2001-present	Global War on Terrorism
2001-2014	NATO coalition in Afghanistan
2003-2011	Iraq War
2014-present	Campaign against ISIL

So the question we should consider...is war the norm and peace the exception?

We could obviously extend the US history of conflict back to ancient times and come to the conclusion that large conflicts are a byproduct of civilization, whether

due to resource scarcity, philosophical and/or religious issues, or simply the grass being greener and desiring what one's neighbor has.

Philosophically I'd like to believe that most people are against the concept of war for the sake of war, and its impact on life and the destruction of infrastructure.

Yet from an investment perspective can we ignore the fact that defense and security is an industry with a constant historical demand, a willing financial sponsor (in governments) and a need to constantly innovate and stay relevant?

If you ever want to question this, name another industry that since 1980, nearly four decades of data, can say that—regardless of cycle—any new investment after reinvesting dividends would always be worth at least the principal invested after three years?

Note: The SPADE Defense Index was designed to reflect the broad interests of the sector to include non-manufactures and a modified market cap philosophy. Data on other A&D indexes which equal weight or exclude most non-manufacturers such as those involved with the IT and intelligence side of the business, do not have data that goes back that far and may not have similar results.

**Trump budget plus ups**

source: Avascent analysis, Defense News 29 May 17

	Total	Aviation	Classified	Ship Systems	Weapons and Munitions	C4ISR	Other	Ground Systems	Space Systems
FY16	189.25B	26.5%	21.9%	13.23%	12.03%	10.92%	8.48%	4.25%	2.62%
FY17	196.57B	24.97%	21.8%	14.21%	12.41%	11.41%	8.23%	4.6%	2.42%
FY18	216.68B	24.39%	21.12%	14.5%	12.9%	11.2%	8.1%	4.6%	3.3%

	2011	2012	2013	2014	2015	2016
US Commercial Aerospace Exports	\$80.4B	\$94.3B	\$105.0B	\$113.1B	\$119.5B	\$120.8B
US Defense Exports	\$84.8B	\$92.1B	\$51.1B	\$59.5B	\$71.1B	\$59.2B

Credit: Deloitte 2017 US Aerospace and Defense sector export and labor market study, Defense News

## Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
YTD	<b>9.71%</b>	8.24%	167
2016	<b>17.95%</b>	9.53%	842
2015	<b>3.23%</b>	[0.73%]	396
2014	<b>11.77%</b>	11.39%	38
2013	<b>48.27%</b>	29.60%	1867
2012	<b>16.30%</b>	13.41%	289
2011	[2.75%]	<b>[0.00%]</b>	[275]
2010	9.62%	<b>12.78%</b>	[316]
2009	21.71%	<b>23.45%</b>	[174]
2008	<b>[38.03%]</b>	[38.49%]	46
2007	<b>22.17%</b>	3.53%	1864
2006	<b>19.33%</b>	13.62%	571
2005	<b>5.30%</b>	3.00%	230
2004	<b>20.47%</b>	8.99%	1148
2003	<b>37.27%</b>	26.38%	1089
2002	<b>[2.87%]</b>	[23.37%]	2050
2001	<b>0.94%</b>	[13.04%]	1488
2000	<b>4.98%</b>	[10.14%]	1512
1999	15.31%	19.53%	[422]
1998	6.63%	26.67%	[2004]

## 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, homeland security, and space.

The Index is designed to reflect the broad diversity of activities that is representative of companies involved with the sector – including industrial firms that manufacture aircraft, tanks, ships, and missiles; and those involved with current and next generation systems related to network centric warfare and information technology; intelligence, surveillance, and reconnaissance; satellites; border security; and defense systems that protect the lives of our servicemen and servicewomen.

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

## Rules

The Index was designed to be RIC (registered investment company) compliant for the purpose of enabling financial products. Companies are required to meet a variety of eligibility criteria including market valuation, liquidity, and listing on a major U.S. exchange. Full details are available on our website.

- \* Market Cap: Minimum \$100M
- \* Share Price: Minimum \$5.00
- \* Sufficient Liquidity

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