



Commentary

The markets have taken the Donald Trump election positively hoping that a Republican-controlled White House and Congress will break the multi-year log jam on Capitol Hill and get a number of pieces of business legislation done--including the repatriation of overseas profits, lower corporate tax rates, and increases to defense and homeland security spending.

Defense and homeland/national security stocks have in particular surged, even overcoming short-term price blips in specific companies such as Boeing and Lockheed Martin after “Trump tweets” regarding the cost of programs such as the replacement for Air Force One and the F-35 Strike Fighter plane.

The SPADE Defense Index ended the year up 17.95%, destroying the S&P500 by 8.4%, and harkening back to the early 2000s when the defense sector outpaced returns in the broader market by double digits for several years in a row--first fueled by rebounding defense spending from the trough of the late-1990s and then in the aftermath of 9-11.

The outperformance was the 5th consecutive year that the Index has outperformed the market. Over that span, the SPADE Defense Index has gained 134.7% outperforming the broader market by a whopping 56.7%

In fact, even including the 2009-2011 period when defense underperformed the market as investors saw the forthcoming peak in US spending and before they realized the magnitude of the shift toward overseas contracts--since 2000, the SPADE Defense Index outperformed the S&P500, a measure of the broader US stock market, in 14 of 17 years, gaining 393.02% vs. just 52.40% for what some analysts referred to as “the lost decade” of investing in the broader market.

Let me repeat that because I had to run the data more than once to make sure it was not an error. Since 2000, the SPADE Defense Index has *outperformed* the S&P500, a measure of the broader US stock market, **by nearly 350%!**

I’ve commented before that the aerospace and defense sector may represent the only true buy and hold sector. Although influenced by global economic

SPADE Defense Index Statistics

12/31/16 Close	4859.74
12/31/15 Close	4120.18
All-time Intraday High: 7 December 2016	5020.55
All-time Closing High: 7 December 2016	5017.38

	SPADE Defense	S&P500
4Q2016	8.28%	3.25%
2016	17.95%	9.54%

**SPADE Defense Index
December 2016 Rebalance**

There were no changes to the constituents made during the rebalance.

Corporate Actions During the Quarter

Honeywell spun off Advansix, a non-defense related division (resins & chemicals), in a special dividend.

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: PPA).

4Q16 Leaders

1	Vectrus	56.60%
2	CACI	23.19%
3	Mercury Computer	23.00%
4	SAIC	22.24%
5	Textron	22.16%
6	Huntington Ingalls	20.06%
7	CSRA	18.36%
8	Boeing	18.17%
9	Leidos	18.16%
10	Esterline Tech	17.31%

4Q16 Laggards

1	FireEye	[19.21%]
2	TASER	[15.27%]
3	Transdigm	[13.89%]
4	Viasat	[11.28%]
5	Sparton	[9.18%]
6	Ball Corp	[8.40%]
7	Comtech	[7.49%]
8	Triumph Group	[4.95%]
9	Honeywell	[0.63%]
10	L-3 Communication	0.92%

2016 Results

1	KeyW Holdings	95.85%	26	Lockheed Martin	15.10%
2	SAIC	85.23%	27	Aerojet Rocketdyne	14.62%
3	Digital Globe	82.95%	28	Vectrus	14.17%
4	Kratos Defense	80.49%	29	United Technologies	14.10%
5	Oshkosh Truck	65.50%	30	Raytheon	14.03%
6	Mercury Computer	64.60%	31	Honeywell	11.86%
7	Huntington Ingalls	45.20%	32	Hexcel	10.74%
8	Curtiss Wright	43.59%	33	Esterline Tech	10.12%
9	Heico	41.92%	34	Transdigm	8.98%
10	TASER	40.20%	35	Viasat	8.54%
11	Mantech Intl	39.72%	36	MOOG	8.38%
12	Woodward	39.05%	37	Boeing	7.67%
13	Teledyne Tech	38.67%	38	CSRA	6.13%
14	CACI	33.97%	39	Engility	3.76%
15	FLIR Systems	28.93%	40	Ball Corp	3.22%
16	L-3 Communication	27.28%	41	Cubic Corp	1.48%
17	AAR Corp	25.71%	42	Rockwell Collins	0.50%
18	General Dynamics	25.70%	43	KBR	[1.36%]
19	BWX Tech	24.96%	44	Orbital ATK	[1.80%]
20	Northrop Grumman	23.18%	45	Aerovironment	[8.96%]
21	Kaman	19.90%	46	Leidos	[9.10%]
22	Sparton	19.31%	47	OSI Systems	[14.14%]
23	Harris Corp	17.92%	48	Triumph Group	[33.33%]
24	Booz Allen	16.92%	49	Comtech	[41.02%]
25	Textron	15.59%	50	FireEye	[42.62%]

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

Exchange / Ticker Symbol:	NYSE / PPA
Assets (12/31/16)	\$444.5 M
Closing Price (12/31/16)	\$41.74
Yield (TTM)	1.70%
4Q2016 Volume	9,727,200
Turnover	16%

source: Yahoo Finance 12/31/16

Portfolio Price / Earnings*	17.65
Portfolio Price / Book*	3.63
Portfolio Price / Sales*	1.30
Portfolio Price / Cash Flow*	11.72
Earnings Growth Rate*	9.95%
Beta (3 year)*	0.82
Alpha (3 year)*	8.51
R-squared (3 years)*	64.93

source: Yahoo Finance 11/30/16

Commentary (continued from page 1)

factors and the ebbs of the stock market, the primary fuel by which it moves, namely government contracts, goes through very long cycles. It also acts as insurance against world instability so when global events cause a market downturn, defense and security become favored. Likewise, the sector as a whole produces solid dividends, also a benefit in times of stress. And when the world sees growth and increased trade, the commercial airline operators tend to place orders to modernize their fleet of planes.

By the numbers....If you look at the data regarding investing in the sector all the way back to 1980 (using SPADE Defense Index data back to 1997 and then an adhoc index of the half dozen largest public companies back to 1980) what you notice is that any downturns in the sector are quickly recouped by investors after reinvesting dividends.

What we expect to see in 2017

The market has started to run really fast since the election, so it is likely there will be a 5-10% drop at some point during the year. That said, new administrations are an unknown, and this one moreso than previous ones. It won't be clear for a while whether Congress will function smoothly or if there will be infighting among Republican factions seeking to constrain the budget/deficit and those wanting to allocate resources toward President Trump's homeland security and defense spending growth plans. While an end to sequestration is a good thing for the defense sector, there are a number of people in Congress who will fight to keep alive the concept that the ratio of any increases/decreases in defense budget be matched by non-defense spending.

Concerns & Challenges for the Next Administration

There are quite a number of global hotspots and political issues. Foremost among them are:

1. Who will eventually be tapped to lead the various agencies in the new administration, will they get approved by the Congress in a timely fashion, and how will their policies change from the prior years? Defense and security strategies rely on the personal leading the

agenda.

2. What will happen with allegations that Russia had a role in influencing the recent election? Will this disappear from the conversation or will a scandal emerge that delays the anticipated changes that occur with the onset of a new administration? Considering the international element, this can impact defense, intelligence, and diplomatic efforts.

3. North Korea: They have "flexed the muscles" in recent months showing increasing missile technologies...but for what purpose and end-game is not clear. What does North Korea actually want? Still, they are a key to keeping the region stable. Their aggression has an impact on South Korea, Japan, and importantly, China. Considering US relationships in the area, this could be a hot spot to watch in 2017.

4. Cyber. In the last newsletter we referred to it as "a game of cat and mouse between brilliant black hats trying to impact a digital system and brilliant white hats trying to stop them. In a sense it is a game with extreme consequences to people organizations and economics." The change in Administration will also play a significant role in how much freedom the intelligence agencies have in monitoring and reacting and what budget is allocated to them.

5. Lastly, we haven't mentioned Syria, Iran, Iraq, the instability in Turkey, or a number of other dynamic hotspots around the globe...and those are just the ones we are tracking at this point in time. New ones seem to pop up regularly

IPOs, Mergers & Acquisitions

With the increase in the stock market, M&A in the A&D sector has been on the rise and we expect to see more of this in the coming quarters of 2017.

Likewise, the IPO market of 2016 was very slow by historical standards. As the market continues to run, analysts forecast a more active 2017. A number of firms have been speculated as IPO candidates but there is currently nothing on the calendar for the early part of the year.

Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
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]
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]



1-Year Chart Comparing the Powershares Aerospace & Defense ETF “PPA” (black) with the S&P500 (yellow)

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.

 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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Dec-16						Market	Forward	Price/	Price/	PEG	
						Cap	P/E	Sales	Book	5 yr	Div Yld
		30-Sep-16	31-Dec-16	YTD	QTD	intraday	(ttm)	ttm	mrq	expected	forward %
Company	Ticker	Price	Price	% Ch	% Ch						
KEY W Holding	KEYW	11.04	11.79	95.85%	6.79%	0.47	51.26	1.54	2.02	2.82	
SAIC	SAIC	69.37	84.80	85.23%	22.24%	3.72	23.11	0.83	10.28	5.08	1.46%
Digital Globe	DGI	27.50	28.65	82.95%	4.18%	1.78	84.26	2.50	1.48	131.58	
Kratos Defense & Security	KTOS	6.89	7.40	80.49%	7.40%	0.53	185	0.80	2.19	-4.86	
Oshkosh Truck	OSK	56.00	64.61	65.50%	15.38%	4.82	18.10	0.77	2.42	1.49	1.21%
Mercury Computer Sys	MRCY	24.57	30.22	64.60%	23.00%	1.24	43.8	4.14	2.49	6.09	
Huntington Ingalls	HII	153.42	184.19	45.20%	20.06%	8.54	17.87	1.21	5.18	1.96	1.30%
Curtiss Wright	CW	91.11	98.36	43.59%	7.96%	4.35	22.20	2.04	3.38	3.21	0.53%
Heico	HEI	69.20	77.15	41.92%	11.49%	4.75	27.95	3.45	5.12	2.84	0.23%
TASER International Inc.	TASR	28.61	24.24	40.20%	-15.27%	1.27	49.47	5.23	8.96	2.58	
Mantech International'a'	MANT	37.69	42.25	39.72%	12.10%	1.63	27.61	1.01	1.33	3.54	1.99%
Woodward	WWD	62.48	69.05	39.05%	10.52%	4.26	18.51	2.11	3.51	1.32	0.64%
Teledyne Technologies	TDY	107.93	123.00	38.67%	13.96%	4.38	22.69	1.96	2.78	0.81	
Caci Intl	CACI	100.90	124.30	33.97%	23.19%	3.03	18.36	0.76	1.84	3.31	
Flir Systems	FLIR	31.42	36.19	28.93%	15.18%	4.93	20.33	3.03	2.98	1.42	1.33%
L-3 Communications Hldgs	LLL	150.73	152.11	27.28%	0.92%	11.76	18.15	1.13	2.58	1.98	1.84%
AAR Corp	AIR	31.32	33.05	25.71%	5.52%	1.13	18.99	0.68	1.3	1.38	0.91%
General Dynamics	GD	155.16	172.66	25.70%	11.28%	52.59	17.11	1.70	4.64	2.45	1.76%
BWX Technologies (1July15 split)	BWXT	38.37	39.7	24.96%	3.47%	3.94	21.81	2.61	33.31	2.42	0.91%
KBR	KBR	15.13	16.69	-1.36%	10.31%	2.44	12.76	0.59	2.09	-21.24	1.86%
Northrop Grumman	NOC	213.95	232.58	23.18%	8.71%	41.00	19.29	1.72	7.13	2.21	1.55%
Kaman	KAMN	43.92	48.93	19.90%	11.41%	1.33	17.29	0.73	2.29	2.57	1.47%
Sparton	SPA	26.26	23.85	19.31%	-9.18%	0.23	14.2	0.57	2.95	1.47	
Harris Corp	HRS	91.61	102.47	17.92%	11.85%	12.73	16.16	1.72	4.16	0.43	2.07%
Booz Allen	BAH	31.61	36.07	16.92%	14.11%	5.39	19.19	0.97	10.41	2.31	1.66%
Textron	TXT	39.75	48.56	15.59%	22.16%	13.12	16.57	0.94	2.32	2.12	0.16%
Lockheed Martin	LMT	239.72	249.94	15.10%	4.26%	73.23	19.57	1.45	31.52	2.63	2.91%
Aerofjet Rocketdyne	AJRD	17.58	17.95	14.62%	2.10%	1.23	22.72	0.72		2.43	
Vectrus	VEC	15.23	23.85	14.17%	56.60%	0.26	16.68	0.21	2.29		
United Technologies	UTX	101.60	109.62	14.10%	7.89%	90.26	16.74	1.59	3.09	2.50	2.41%
Raytheon Co	RTN	136.13	142.00	14.03%	4.31%	41.70	19.09	1.73	3.99	1.83	2.06%
Honeywell Intl	HON	116.59	115.85	11.86%	-0.63%	88.29	16.48	2.25	4.60	2.23	2.30%
Hexcel	HXL	44.30	51.44	10.74%	16.12%	4.72	18.91	2.38	3.75	2.04	0.86%
Esterline Technologies	ESL	76.04	89.20	10.12%	17.31%	2.64	16.89	1.32	1.67	1.66	
Transdigm	TDG	289.12	248.96	8.98%	-13.89%	13.28	18.24	4.19		2.00	
Viasat Inc	VSAT	74.64	66.22	8.54%	-11.28%	3.77	71.98	2.55	2.74	2.49	
Moog Inc.	MOGA	59.54	65.68	8.38%	10.31%	2.35	15.75	0.98	2.38	2.05	
Boeing Co	BA	131.74	155.68	7.67%	18.17%	96.08	16.67	1.01	46.13	2.16	3.65%
CSRA Inc. (16Nov15 split)	CSRA	26.9	31.84	6.13%	18.36%	5.20	15.31	1.08	29.59	1.57	0.97%
Engility	EGL	31.50	33.70	3.76%	6.98%	1.24	-116.2	0.59	1.81		
Ball Corp	BLL	81.95	75.07	3.22%	-8.40%	13.12	17.42	1.56	2.86	2.47	0.69%
Cubic Corp	CUB	46.81	47.95	1.48%	2.44%	1.30	25.37	0.89	1.88	4.24	0.56%
Rockwell Collins	COL	84.34	92.76	0.50%	9.98%	12.11	16.02	2.30	5.81	2.57	1.42%
Orbital ATK (merged 2/10/15)	OA	76.23	87.73	-1.80%	15.09%	5.14	14.62	1.11	2.60	1.58	1.37%
AeroVironment	AVAV	24.41	26.83	-8.96%	9.91%	0.62	52.61	2.58	1.78	-4.44	
Leidos	LDOS	43.28	51.14	-9.10%	18.16%	7.69	15.83	1.33	2.46	1.45	2.50%
OSI Systems	OSIS	65.38	76.12	-14.14%	16.43%	1.45	21.03	1.71	2.63	1.53	
Triumph Group	TGI	27.88	26.50	-33.33%	-4.95%	1.31	6.48	0.35	1.40	-9.85	0.60%
Comtech	CMTL	12.81	11.85	-41.02%	-7.49%	0.28	23.70	0.58	0.50	2.45	3.38%
FireEye	FEYE	14.73	11.90	-42.62%	-19.21%	2.04	-25.87	2.85	2.32	-0.63	

Data Provided by Yahoo Finance, Thomson Reuters (P/E, PEG), Morningstar (div)