

**Commentary**

**Deletions to the SPADE Defense Index: March 2016 Rebalance**

1. Intelsat (NYSE: I) -- share price dropped below required levels
2. Ducommun (NASDAQ: DCO) -- liquidity dropped below required levels

Corporate Actions During the Quarter

1. Precision Castparts (PCP): Acquired by Berkshire Hathaway. Closed on 29 January 2016.

**Launch of Titan ETF**

SPADE Indexes in April plans to file for its own exemptive relief enabling the firm to bring ETFs to market in a more efficient manner. Titan ETF LLC, registered in Delaware, anticipates launching several new products later in the year. If you are interested in learning more about this new venture, please contact Scott Sacknoff directly or visit TitanETF.com for more information.

**Commentary**

**The Forthcoming Presidential Election and Its Impact on the Aerospace & Defense Sector**

Several years ago we provided research that showed that defense spending had more to do with world stability than it did on which political party controlled the White House. The perception had been that Republican administrations tend to favor defense spending more than Democratic administrations. The research results however indicated that if one looks at the last 75 years of U.S. history they'll notice that defense spending had been strong during Democratic administrations when we had combat operations during WWII, Korea, and Vietnam but declined in the post-Vietnam era and after the fall of the Soviet Union. Defense spending started to rise in the last two years of the Clinton administration and surged in the aftermath of 9/11 during the Republican George W. Bush presidency but declined in the last years of the Geroge HW Bush White House.

Regardless of party, both tend to show strong support, especially during an election cycle, for defense and security and the men and women in the military. To appear deliberately weak in this area

**SPADE Defense Index Statistics**

3/31/16 Close	4075.14
12/31/15 Close	4120.18
All-time High:	4299.50
All-time Close:	4296.88
24 February 2015	

	SPADE Defense	S&P500
1Q2016	-1.09%	0.77%
2015	3.23%	[0.73%]

**Military Spending by Country (Analysis on Page 3)**

		Spending (\$B)	Change 06-15	World Share %	GDP Share 2015 **
1	U.S.	\$596	-3.9%	36%	3.3%
2	China *	215	132%	13%	2.0%
3	Saudi Arabia	87.2	97%	5.2%	7.8%
4	Russia	66.4	91%	4.0%	3.5%
5	UK	55.5	-7.2%	3.3%	2.2%
6	India	51.3	43%	3.1%	2.5%
7	France	50.9	-5.9%	3.0%	2.3%
8	Japan	40.9	-0.5%	2.4%	1.0%
9	Germany	39.4	2.8%	2.4%	1.3%
10	South Korea	36.4	37%	2.2%	2.5%
11	Brazil	24.6	38%	1.5%	1.5%
12	Italy	23.8	-30%	1.4%	1.7%
13	Australia	23.6	32%	1.4%	1.8%
14	UAE* ***	22.8	136%	1.4%	3.2%
15	Israel	16.1	2.6%	1.0%	7.5%

<b>Top 15 Total: \$1.35 T</b>		<b>81%</b>	
<b>World Total : \$1.68 T</b>	<b>19%</b>	<b>100%</b>	<b>2.3%</b>

\* SIPRI estimate

Source: SIPRI Fact Sheet, *Defense News* 11April16

\*\* Based on estimate of 2015 GDP from the iNternational Monetary Fund World Economic Outlook Database, October 2015

\*\*\* UAE figures from 2014, no data is available for 2015.

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## 1Q 2016 Results

1	Kratos Defense	20.73%	26	Teledyne Tech	-0.63%
2	Viasat	20.44%	27	L-3 Communications	-0.85%
3	FLIR Systems	17.39%	28	Raytheon	-1.53%
4	SAIC	160.51%	29	Booz Allen	-1.85%
5	Comtech	16.33%	30	Ball Corp	-1.98%
6	CACI	15.00%	31	Orbital ATK	-2.69%
7	Taser Int'l	13.53%	32	Transdigm	-3.55%
8	Heico	10.61%	33	Aerovironment	-3.90%
9	Mercury Computer	10.57%	34	General Dynamics	-4.36%
10	DigitalGlobe	10.47%	35	Hexcel	-5.90%
11	Curtiss Wright	10.47%	36	Sparton	-10.01%
12	KEY W	10.30%	37	CSRA	-10.33%
13	Vectrus	8.90%	38	Harris Corp	-10.40%
14	Honeywell	8.19%	39	Leidos	-10.56%
15	Huntington Ingalls	7.95%	40	AAR Corporation	-11.49%
16	Mantech	5.79%	41	Boeing	-12.21%
17	BWX Technologies	5.63%	42	Textron	-13.21%
18	Northrop Grumman	4.81%	43	FireEye	-13.26%
19	Woodward	4.75%	44	Cubic Corp	-15.43%
20	Oshkosh Truck	4.69%	45	Triumph Group	-20.81%
21	Kaman	4.61%	46	Esterline Tech	-20.90%
22	Aerojet Rocketdyne	4.60%	47	Moog	-24.62%
23	United Tech	4.19%	48	OSI Systems	-26.13%
24	Lockheed Martin	2.00%	49	American Science	-33.08%
25	Rockwell Collins	-0.10%	50	Engility	-42.24%

## Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
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	<b>[2.75%]</b>	[0.00%]	[275]
2010	9.62%	12.78%	[316]
2009	21.71%	23.45%	[174]
2008	[38.03%]	[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]

## Licensed Products

Exchange Traded Fund - ETF

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

ETF Statistics (NYSE: PPA)

## Powershares Aerospace &amp; Defense

Exchange / Ticker Symbol:	NYSE / PPA
Assets ( 3/31/16)	\$285.6 M
Closing Price ( 3/31/16)	\$35.32
Yield (12-Month Yield)	1.43%
1Q2016 Volume	4,792,600
Turnover	14%

source: Yahoo Finance

Portfolio Price / Earnings*	17.52
Portfolio Price / Book*	3.31
Portfolio Price / Sales*	1.23
Portfolio Price / Cash Flow*	10.94
Earnings Growth Rate*	10.45%
Beta (3 year)*	0.82
Alpha (3 year)*	11.12
R-squared (3 years)*	60.85

Yahoo Finance

**Commentary** (continued from page 1)

would be political suicide in this day and age as daily news reports highlight terrorist actions and instability.

Additionally while political demographic stories tend to focus on voting blocks like the elderly or NRA members, according to fivethirtyeight.com there were close to 1.4 million active military (0.4% of the population) and 22 million veterans. Combined this makes up 7.3% of all living Americans. Of these, 7.25 million served in Vietnam and 7.05 million are Gulf War vets. (Data as of 19 March 2015, provided by the Department of Veteran Affairs)

**Performance of A&D Stocks in the Primary Season, Presidential Election Season, and Post-Election**

So removing the presidential party out of the discussion, how do defense stocks perform during the political season?

Looking back at the past four presidential cycles, in the April - July timeperiod when candidates close out the primary season and secure their party's nomination, the market as a whole has typically declined. Whether this is dependent on the seasonal effect (ie. Go Away in May) or due to other factors, the trend is down on the market and slightly more down for Aerospace & Defense.

Apr-July	Defense	S&P500	Alpha
2012	-4.42%	-2.56%	-1.86%
2008	-10.48%	-8.53%	-1.95%
2004	2.74%	-0.50%	3.24%
2000	-6.03%	-1.49%	-4.54%

As we move into the Presidential debates and the rhetoric escalates between the two chosen candidates regarding which party is best suited for the White House, defense spending starts to shine. Three examples of outperforming the market. 2008 was the collapse of the housing market and aerospace and defense investors had been treated to a decade of significant gains, outperforming the S&P500 by a wide margin. As the stock market sold off, many investors chose to sell and preserve the gains they had received. Still, the sector managed to just track the broader decline.

Aug - Oct	Defense	S&P500	Alpha
2012	6.00%	3.67%	2.33%
2008	-24.34%	-23.56%	-0.78%
2004	5.63%	2.59%	3.04%
2000	13.30%	-0.10%	13.40%

The last phase takes us from the beginning of November through the election and toward January's inauguration ceremony. In each of the past four elections, aerospace and defense outperformed the market. And in 2008, the sector stabilized faster than the broader market as investors who sold to recognize gains and/or raise cash realized the sell-off was presenting a value opportunity compared to the market.

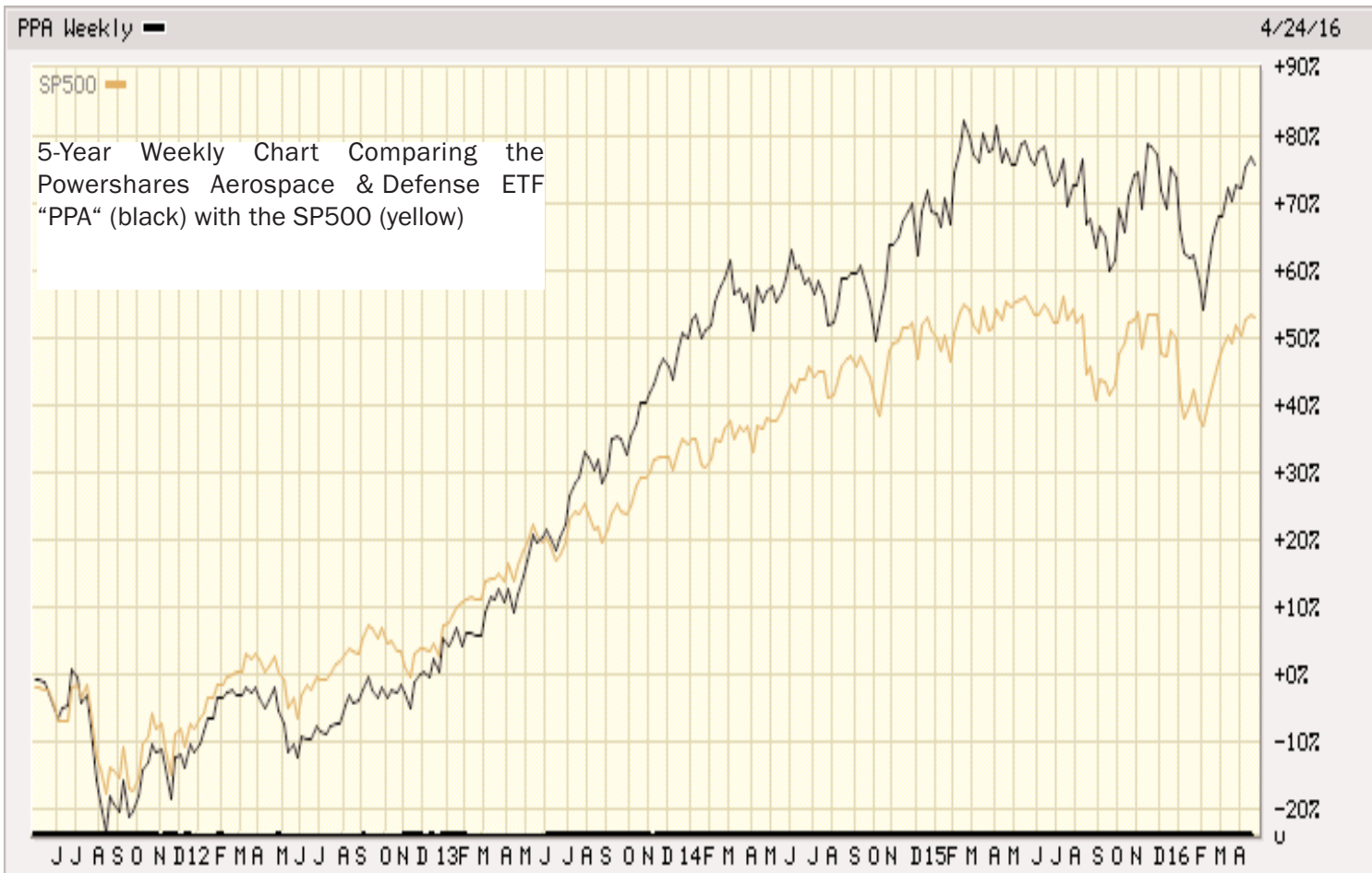
Nov-Jan	Defense	S&P500	Alpha
2012	6.19%	6.09%	0.10%
2008	-4.00%	-14.75%	10.75%
2004	5.08%	4.52%	0.56%
2000	-0.91%	-4.43%	3.53%

So what does this mean?

After looking at all the data, it appears that once we enter the summer months during a presidential election season, it is a time to buy into aerospace and defense; which for each of the past four cycles, produced gains in line with or that outperformed the broader market.

**Global Defense Spending Rises for First Time in Five Years**

According to the latest report from SIRPI (Stockholm International Peace Research Institute), global defense spending rose for the first time in five years. This was in spite of the fact that U.S. spending declined by 2.4% and several oil nations (such as Venezuela, South Sudan, etc.) cut military spending. SIPRI expects larger oil dependent nations such as Russia and Saudi Arabia will cut back in 2016 however we believe that remains to be seen. Although a logical assumption considering the budget account deficits that both countries are running, both nations are involved in military actions; Russia in the Ukraine and Syria, and Saudi Arabia in the Arabian peninsula and in Africa. So long as ISIS/ISIL remains a threat in the region, Saudi Arabia wants to control its internal political status quo. Likewise Russia wants to exert its influence locally in neighboring countries and maintain its global presence. Therefore it is our opinion that a reduction in spending is not assured.



### 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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Apr-16		SPADE Defense Index					Market	Forward	Price/	Price/	PEG	
Company	Ticker	31-Mar-16	31-Dec-15	31-Mar-16	YTD	QTD	intraday	(ttm)	ttm	mrq	expected	forward %
		Float %	Price	Price	% Ch	% Ch	Cap	P/E	Sales	Book	5 yr	Div Yld
AAR Corp	AIR	0.32%	26.29	23.27	-11.49%	-11.49%	0.81	11.93	0.50	0.93	1.52	1.32%
Aerojet Rocketdyne	AJRD	0.42%	15.66	16.38	4.60%	4.60%	1.06	15.60	0.63		1.07	
American Science & Engineering	ASEI	0.08%	41.38	27.69	-33.08%	-33.08%	0.20	62.93	1.82	1.44	149.35	7.28%
AeroVironment	AVAV	0.26%	29.47	28.32	-3.90%	-3.90%	0.65	101.14	2.45	1.89	-14.39	
Boeing Co	BA	6.43%	144.59	126.94	-12.21%	-12.21%	84.10	13.43	0.89	13.53	1.44	3.30%
Booz Allen	BAH	1.78%	30.85	30.28	-1.85%	-1.85%	4.51	17.60	0.84	11.75	2.17	2.03%
Ball Corp	BLL	3.96%	72.73	71.29	-1.98%	-1.98%	10.08	17.35	1.26	8.06	3.21	0.74%
BWX Technologies (1July15 split)	BWXT	1.38%	31.77	33.56	5.63%	5.63%	3.50	19.51	2.53	13.56	1.98	1.06%
Caci Intl	CACI	1.02%	92.78	106.70	15.00%	15.00%	2.59	16.24	0.77	1.67	1.79	
Comtech	CMTL	0.15%	20.09	23.37	16.33%	16.33%	0.38	27.49	1.29	0.96	-1.03	5.26%
Rockwell Collins	COL	4.01%	92.3	92.21	-0.10%	-0.10%	12.09	15.66	2.34	6.39	1.84	1.45%
CSRA Inc. (16Nov15 split)	CSRA	1.72%	30	26.9	-10.33%	-10.33%	4.36	13.25	1.11	21.44	1.27	1.64%
Cubic Corp	CUB	0.42%	47.25	39.96	-15.43%	-15.43%	1.08	16.51	0.76	1.45	0.53	0.69%
Curtiss Wright	CW	1.33%	68.50	75.67	10.47%	10.47%	3.37	16.70	1.52	2.67	1.65	0.70%
Digital Globe	DGI	0.44%	15.66	17.30	10.47%	10.47%	1.11		1.55	0.91	896.32	
Engility	EGL	0.27%	32.48	18.76	-42.24%	-42.24%	0.70	13.4	0.36	0.72	-3.53	
Esterline Technologies	ESL	0.75%	81.00	64.07	-20.90%	-20.90%	1.90	11.80	1.02	1.27	1.28	
FireEye	FEYE	1.18%	20.74	17.99	-13.26%	-13.26%	2.99		4.77	2.71	-0.57	
Flir Systems	FLIR	1.79%	28.07	32.95	17.39%	17.39%	4.53	17.53	2.99	2.83	1.34	1.45%
General Dynamics	GD	6.35%	137.36	131.37	-4.36%	-4.36%	40.88	13.07	1.30	3.82	1.47	2.36%
Heico	HEI	1.59%	54.36	60.13	10.61%	10.61%	4.02		3.30	4.39		0.30%
Huntington Ingalls	HII	2.55%	126.85	136.94	7.95%	7.95%	6.47	13.64	0.92	4.36	1.47	1.50%
Honeywell Intl	HON	6.72%	103.57	112.05	8.19%	8.19%	85.31	15.56	2.24	4.73	2.06	2.14%
Harris Corp	HRS	3.83%	86.90	77.86	-10.40%	-10.40%	9.71	12.72	1.54	3.01	7.17	2.56%
Hexcel	HXL	1.60%	46.45	43.71	-5.90%	-5.90%	4.06	14.92	2.21	3.49	1.56	0.90%
Kaman	KAMN	0.45%	40.81	42.69	4.61%	4.61%	1.15	14.98	0.67	2.19	1.7	1.70%
KEY W Holding	KEYW	0.10%	6.02	6.64	10.30%	10.30%	0.26	30.18	0.85	1.02	-25.56	
Kratos Defense & Security	KTOS	0.12%	4.10	4.95	20.73%	20.73%	0.29	165	0.38	1.14	-1.35	
Leidos	LDOS	1.43%	56.26	50.32	-10.56%	-10.56%	3.63	16.18	0.71	3.37	2.29	2.62%
L-3 Communications Hldgs	LLL	3.62%	119.51	118.50	-0.85%	-0.85%	9.19	14.16	0.89	2.15	9.21	2.36%
Lockheed Martin	LMT	6.73%	217.15	221.5	2.00%	-85.27%	67.67	16.20	1.46	21.81	2.27	3.00%
Mantech International'a'	MANT	0.48%	30.24	31.99	5.79%	51.06%	1.21	21.19	0.79	1.03	2.71	2.70%
Moog Inc.	MOGA	0.66%	60.60	45.68	-24.62%	-66.50%	1.68	11.68	0.69	1.84	1.30	
Mercury Computer Sys	MRCY	0.28%	18.36	20.30	10.57%	977.89%	0.71	31.23	2.91	1.86	4.22	
Northrop Grumman	NOC	5.65%	188.81	197.90	4.81%	-53.95%	35.81	16.59	1.53	6.52	2.49	1.65%
Orbital ATK (merged 2/10/15)	OA	2.02%	89.34	86.94	-2.69%	-26.70%	5.10	13.69	1.37	2.71	1.05	1.43%
OSI Systems	OSIS	0.51%	88.66	65.49	-26.13%	-53.90%	1.30	18.55	1.48	2.29	1.18	
Oshkosh Truck	OSK	1.18%	39.04	40.87	4.69%	214.11%	2.99	13.27	0.50	1.65	-7.72	1.90%
Raytheon Co	RTN	5.78%	124.53	122.63	-1.53%	-85.55%	36.67	15.46	1.59	3.65	2.02	2.38%
SAIC	SAIC	0.96%	45.78	53.34	16.51%	-57.12%	2.43	16.21	0.57	6.13	3.38	2.62%
Sparton	SPA	0.07%	19.99	17.99	-10.01%	1002.25%	0.18	9.83	0.41	1.45	0.90	
TASER International Inc.	TASR	0.42%	17.29	19.63	13.53%	409.77%	1.05	40.06	5.32	6.71	5.18	
Transdigm	TDG	3.97%	228.45	220.34	-3.55%	-86.22%	11.78	18.39	4.19		1.48	
Teledyne Technologies	TDY	1.20%	88.70	88.14	-0.63%	-58.90%	3.04	15.52	1.36	2.33	1.68	
Triumph Group	TGI	0.61%	39.75	31.48	-20.81%	151.82%	1.55	5.77	0.40	0.72	3.17	0.50%
Textron	TXT	3.87%	42.01	36.46	-13.21%	-45.85%	9.89	11.95	0.73	2.01	1.07	0.20%
United Technologies	UTX	6.79%	96.07	100.10	4.19%	-23.51%	83.76	14.30	1.49	3.07	1.69	2.58%
Vectrus	VEC	0.10%	20.89	22.75	8.90%	149.02%	0.24	9.6	0.21	2.85		
Viasat Inc	VSAT	1.42%	61.01	73.48	20.44%	20.44%	3.59	48.99	2.52	3.21	2.53	
Woodward	WWD	1.27%	49.66	52.02	4.75%	4.75%	3.22	15.53	1.63	2.88	1.79	0.85%

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