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Commentary

Unless you’ve been living in a cave somewhere (and without wifi access) you could not have missed the tremendous run defense stocks have had since the election. In fact, defense has nearly doubled the performance of the broader stock market, up more than 23% through the end of the 3rd quarter. Speaking of the 3rd quarter--as tensions and the rhetoric with North Korea steadily rose, terrorism struck the UK twice, and with a level of political uncertainty greater than any time in recent memory--defense stocks soared more than 12% in the past three months alone.

But investing is not about history, it is about looking into the crystal ball and trying to predict future returns. So the question investors should be asking is:

- (a) is the sector over, under, or properly valued?
- (b) is downside risk greater than upside potential?
- (c) what black swans exist that could quickly adjust the pro-aerospace and defense thesis?

Our thoughts are that we always believed aerospace and defense stocks were undervalued so the run-up has been justified. Where we go from here...we will defer to the analysts who cover most of these firms with detailed in-depth analysis. Suffice it is to say, if we look at the following 11 factors that drive defense stocks, most remain positive.

- | | | |
|----------------------------|----------------------------|----------------------------|
| 1. Generic Market Forces | 2. Defense Budget | 3. Winds of War |
| 4. Audits of War | 5. Outbreak of Peace | 6. Indiv. Winners & Losers |
| 7. Public Opinion | 8. Economic Hedge | 9. Politics |
| 10. Non-defense Activities | 11. International Business | |

Still, investors in the sector should always consider the six defense-specific investing risks that can impact individual companies and the sector as a whole:

continued on page 3

Revenues (source DN Top 100)
10 Largest Defense Companies: \$197 Billion
Remaining 90 of the Top 100: \$168 Billion
Total Defense Revenues Top 100 Firms: \$364.87 Billion

SPADE Defense Index Statistics

9/29/17 Close	5979.77
12/31/16 Close	4859.74

All-time Intraday High:	
27 September 2017	5988.03

All-time Closing High:	
29 September 2017	5979.77

	SPADE Defense	S&P500
3Q17	12.16%	3.96%
YTD	23.05%	12.53%
2016	17.95%	9.54%

**SPADE Defense Index
September 2017 Rebalance**

There were no changes to the index.

Corporate Actions Affecting the Index During the Quarter

None. The MDA acquisition of DGI is expected to close in early 4Q17.

United Tech. announced its intent to acquire Rockwell Collins.

Northrop Grumman announced its intent to purchase Orbital ATK

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).

3Q17 Leaders

1	Aerojet Rocketdyne	68.32%
2	AeroVironment	41.68%
3	Orbital ATK	35.38%
4	Boeing	28.50%
5	VSE Corp	26.41%
6	Heico	25.01%
7	Teledyne Tech	24.70%
8	Rockwell Collins	24.39%
9	Mercury Computer	23.26%
10	Engility	22.11%

3Q17 Laggards

1	Key W Holding	-18.61%
2	AXON	-9.82%
3	Triumph Group	-5.85%
4	United Tech.	-4.94%
5	Transdigm	-4.92%
6	Esterline Tech	-4.91%
7	Vectrus	-4.58%
8	SAIC	-3.70%
9	ViaSat	-2.84%
10	Ball Corp	-2.16%

YTD Results

1	AeroVironment	101.71%	28	Heico	16.41%
2	Aerojet Rocketdyne	95.04%	29	Leidos	15.80%
3	Kratos	76.76%	30	AAR Corp	14.3%
4	Comtech	73.25%	31	Kaman	14.00%
5	Mercury Computer	71.67%	32	Woodward	12.40%
6	Boeing	63.29%	33	Triumph Group	12.26%
7	Orbital ATK	51.78%	34	CACI Intl	12.11%
8	VSE Corp.	46.85%	35	Hexcel	11.63%
9	Elbit Systems	45.45%	36	Textron	10.96%
10	BWX Tech	41.11%	37	Ball Corp	10.03%
11	FireEye	40.92%	38	FLIR Systems	7.52%
12	Rockwell Collins	40.91%	39	KBR	7.13%
13	Raytheon	31.39%	40	Cubic Corp	6.36%
14	Teledyne Tech	29.41%	41	Curtiss Wright	6.28%
15	Vectrus	29.31%	42	United Tech	5.89%
16	Harris Corp	28.51%	43	Mantech	4.50%
17	Oshkosh Truck	27.75%	44	Booz Allen	3.66%
18	Moog	27.02%	45	Engility	2.91%
19	Ducommun	25.39%	46	Transdigm	2.69%
20	Lockheed Martin	24.15%	47	CSRA	1.35%
21	L-3	23.88%	48	Esterline Tech	1.07%
22	Northrop Grumman	23.71%	49	Sparton	-2.68%
23	DigitalGlobe	23.04%	50	ViaSat	-2.87%
24	Huntington Ingalls	22.94%	51	AXON	-6.48%
25	Honeywell	22.35%	52	SAIC	-21.17%
26	OSI Systems	20.03%	53	Key W Holding	-35.45%
27	General Dynamics	19.07%			

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

Exchange / Ticker Symbol:	NYSE / PPA
Assets (9/29/17)	\$784M
Closing Price (9/29/17)	\$51.29
Yield (TTM)	1.21%
3Q2017 Volume	5,,552,000
Turnover	11%

source: Yahoo Finance 9/30/17

Portfolio Price / Earnings*	21.98
Portfolio Price / Book*	4.28
Portfolio Price / Sales*	1.66
Portfolio Price / Cash Flow*	14.23
Beta (3 year)*	0.84
Alpha (3 year)*	11.12
R-squared (3 years)*	51.31

source: Yahoo Finance 9/30/17

Commentary (continued from page 1)

1. Political surprises
2. Changes to the budget picture
3. Programs cancelled or cut back
4. Percent of programs completed
5. Non-defense markets
6. Classified program unknowns

Fueled by a changing, more-complex, integrated world, the historical good news for investors is that the aerospace and defense sector has been on an upcycle that has lasted significantly longer than one would typically expect based on past cycles. With both the White House and Congress supporting the sector’s efforts and global commercial aerospace firms experiencing healthy production for several more years, the key concerns for investors likely relate to economic and market forces and political surprises.

Merger mania

The large firms had been mostly quiet of late, but two significant deals were announced as we emerged from the summer months. Both on the surface seem to make sense:

- United Technologies bid \$30 billion for Rockwell Collins
- Northrop Grumman bit \$7.8 billion for Orbital ATK

“Defense News Top 100” – The Top 10 (ex-China)

Rank	Company	2016 Defense Revenues	Revenue Change
1	Lockheed Martin	\$43.5 B	+7%
2	Boeing	\$29.5 B	+3%
3	BAE (UK)	\$23.6 B	-7%
4	Raytheon	\$22.4 B	+4%
5	Northrop Grumman	\$20.2 B	+15%
6	General Dynamics	\$19.7 B	+3%
7	Airbus (Neth/France)	\$12.3 B	-4%
8	L-3	\$ 8.9 B	+1%
9	Leonardo (Italy)	\$ 8.5 B	-9%
10	Thales (France)	\$ 8.4 B	+6%

Firms	Region
43	Americas
37	EU (incl Russia/Turkey)
15	Asia (ex-China)
5	Middle East / Africa

“Defense News Top 100” – US Listed Firms

Rank	Company	2016 Defense Revenues	Revenue Change
12	United Technologies	\$6.9B	2%
13	Huntington Ingalls	\$6.8B	-1%
16	Textron	\$4.4B	6%
17	Honeywell	\$4.4B	-7%
18	Leidos	\$4.3B	31%
20	Harris	\$4.2B	-4%
22	Booz Allen	\$4.0B	3%
24	General Electric (diversified)	\$3.5B	-5%
27	Elbit (Israel)	\$3.1B	1%
28	Bechtel (diversified)	\$3.0B	-7%
30	AECOM (diversified)	\$2.9B	7%
31	Orbital ATK	\$2.9B	3%
34	SAIC	\$2.6B	-9%
36	CACI	\$2.4B	10%
39	CSRA	\$2.3B	34%
40	Rockwell Collins	\$2.2B	1%
42	Aerojet Rocketdyne	\$1.8B	3%
46	KBR	\$1.5B	18%
48	Mantech	\$1.5B	3%
52	Oshkosh Truck	\$1.4B	44%
56	Dyncorp (Private)	\$1.3B	-1%
57	Vectrus	\$1.2B	1%
59	PAE (Private)	\$1.1B	22%
63	Fluor (diversified)	\$986M	3%
67	Vencore	\$886M	1%
70	Cubic	\$875M	1%
72	Engility	\$848M	-5%
76	Moog	\$819M	-3%
78	Curtiss Wright	\$794M	1%
82	ViaSat	\$685M	13%
85	AAR	\$652M	11%
88	Ball Corp	\$551M	-5%
91	Day & Zimmerman (Private)	\$521M	-7%
95	Battelle (Private)	\$470M	-1%
96	Telephonics (diversified)	\$403M	1%
99	LGS Innovation (Private)	\$330M	---

Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
YTD	23.05%	12.53%	1052
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]



Two-year chart comparing Powershares Aerospace & Defense ETF “PPA“ (blue) with the S&P500 (red)

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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End of 3Q17							Market	Forward	Price/	Price/	PEG		
							Cap	P/E	Sales	Book	5 yr		Div Yld
		Percent	30-Jun-17	30-Sep-17	YTD	QTD	intraday	(ttm)	ttm	mrq	expected		forward %
Company	Ticker		Price	Price	% Ch	% Ch							
KEY W Holding	KEYW	0.07%	9.35	7.61	-35.45%	-18.61%	0.46	0.37	1.12	1.25	-1.19		
SAIC	SAIC	0.73%	69.42	66.85	-21.17%	-3.70%	3.03	2.89	0.67	8.75	3.61		1.91%
AXON International Inc.	AAXN	0.29%	25.14	22.67	-6.48%	-9.82%	1.33	1.20	3.83	7.32	3.14		
Viasat Inc	VSAT	0.92%	66.20	64.32	-2.87%	-2.84%	3.82	73.09	2.37	2.04	58.47		
Sparton	SPA	0.05%	21.99	23.21	-2.68%	5.55%	0.22	0.23	0.57	2.88			
Esterline Technologies	ESL	0.66%	94.80	90.15	1.07%	-4.91%	2.82	2.70	1.34	1.56	2.11		
CSRA Inc. (16Nov15 split)	CSRA	1.30%	31.75	32.27	1.35%	1.64%	5.20	5.28	1.06	13.91	1.63		1.26%
Transdigm	TDG	3.37%	268.87	255.65	2.69%	-4.92%	13.99	13.27	3.82	-7.00	2.82		
Engility	EGL	0.31%	28.40	34.68	2.91%	22.11%	1.05	1.28	0.64	1.80			
Booz Allen	BAH	1.37%	32.54	37.39	3.66%	14.90%	4.83	5.56		9.28	2.22		1.83%
Mantech International'a'	MANT	0.42%	41.38	44.15	4.50%	6.69%	1.61	1.72	1.05	1.36	9.61		1.94%
United Technologies	UTX	6.89%	122.11	116.08	5.89%	-4.94%	97.84	92.72	1.60	3.26	3.14		2.42%
Curtiss Wright	CW	1.14%	91.78	104.54	6.28%	13.90%	4.06	4.61	2.13	3.31	2.73		0.57%
Cubic Corp	CUB	0.34%	46.30	51.00	6.36%	10.15%	1.26	1.38	0.96	2.09	-0.72		0.53%
KBR	KBR	0.63%	15.22	17.88	7.13%	17.48%	2.18	2.5	0.56	3.04	-5.01		1.79%
Flir Systems	FLIR	1.31%	34.66	38.91	7.52%	12.26%	4.73	5.34	3.10	3	1.34		1.51%
Ball Corp	BLL	3.58%	42.21	41.30	10.03%	-2.16%	14.82	14.53	1.37	4.03	1.81		0.98%
Textron	TXT	3.61%	47.10	53.88	10.96%	14.39%	12.61	14.26	1.04	2.51	2.86		0.15%
Hexcel	HXL	1.30%	52.79	57.42	11.63%	8.77%	4.80	5.16	2.64	3.88	2.55		0.86%
Caci Intl	CACI	0.84%	125.05	139.35	12.11%	11.44%	3.06	3.41	0.78	1.90	3.34		
Triumph Group	TGI	0.36%	31.60	29.75	12.26%	-5.85%	1.57	1.48	0.43	1.73	-1.37		0.57%
Woodward	WWD	1.18%	67.58	77.61	12.40%	14.84%	4.14	22.17	2.28	3.64	1.96		0.66%
Kaman	KAMN	0.37%	49.87	55.78	14.00%	11.85%	1.36	1.56	0.88	2.59	2.10		1.52%
AAR Corp	AIR	0.32%	34.76	37.78	14.31%	8.69%	1.16	1.29	0.73	1.4	0.86		0.80%
Leidos	LDOS	2.20%	51.69	59.22	15.80%	14.57%	7.81	8.95	0.93	2.77	2.25		2.17%
Heico	HEI	1.87%	71.84	89.81	16.41%	25.01%	5.54	6.9	4.71	6.82	3.63		0.18%
General Dynamics	GD	6.54%	198.10	205.58	19.07%	3.78%	59.76	61.56	1.97	5.63	2.48		1.65%
OSI Systems	OSIS	0.42%	75.15	91.37	20.03%	21.58%	1.40	1.72	1.79	3.13	-1.67		
Honeywell Intl	HON	6.83%	133.29	141.74	22.35%	6.34%	101.61	107.80	2.74	5.28	2.96		1.89%
Huntington Ingalls	HII	2.59%	186.16	226.44	22.94%	21.64%	8.57	10.28	1.43	6.24	7.54		1.11%
Digital Globe	DGI	0.54%	33.30	35.25	23.04%	5.86%	2.07	2.19	2.71	1.85			
Northrop Grumman	NOC	5.31%	256.71	287.72	23.71%	12.08%	44.81	50.11	1.99	8.47	2.79		1.41%
L-3 Communications Hldgs	LLL	3.61%	167.08	188.43	23.88%	12.78%	13.01	14.74		2.95	5.06		1.60%
Lockheed Martin	LMT	6.86%	277.61	310.29	24.15%	11.77%	80.35	89.36	1.82	70.65	4.16		2.38%
Ducommun	DCO	0.08%	31.58	32.05	25.39%	1.49%		0.36	0.66	1.66	81.60		
Moog Inc.	MOGA	0.74%	71.72	83.43	27.02%	16.33%	2.57	2.99					
Oshkosh Truck	OSK	1.51%	68.88	82.54	27.75%	19.83%	5.15	6.18	0.93	2.83	1.43		1.02%
Harris Corp	HRS	3.99%	109.08	131.68	28.51%	20.72%	13.30	15.68	2.66	5.41	0.77		1.74%
Vectrus	VEC	0.08%	32.32	30.84	29.31%	-4.58%	0.35	15.42	0.3	2.54			
Teledyne Technologies	TDY	1.38%	127.65	159.18	29.41%	24.70%	4.5	5.62	2.43	3.25	0.97		
Raytheon Co	RTN	5.77%	161.48	186.58	31.39%	15.54%	47.00	54.15	2.21	5	2.59		1.73%
Rockwell Collins	COL	3.98%	105.08	130.71	40.91%	24.39%	17.06	21.28	3.50	3.79	1.83		1.01%
FireEye	FEYE	0.72%	15.21	16.77	40.92%	10.26%	2.71	3.05	4.18	3.78	-5.34		
BWX Technologies (1July15 split)	BWXT	1.38%	48.75	56.02	41.11%	14.91%	4.83	5.56	3.43	21.07	2.57		0.81%
Elbit Systems	ESLT	1.56%	123.75	147.08	45.45%	18.85%	5.16	6.01	1.82	3.83	2.10		1.24%
VSE Corporation	VSEC	0.15%	44.98	56.86	46.85%	26.41%	0.49	12.75	0.79	2.28			0.49%
Orbital ATK (merged 2/10/15)	OA	1.90%	98.36	133.16	51.78%	35.38%	5.68	7.67	1.70	3.93	2.14		0.96%
Boeing Co	BA	6.78%	197.75	254.21	63.29%	28.55%	119.36	150.26	1.65		1.36		2.23%
Mercury Computer Sys	MRCY	0.50%	42.09	51.88	71.67%	23.26%	2.02	2.50	6.11	3.31	3.30		
Comtech	CMTL	0.11%	18.97	20.53	73.25%	8.22%	0.45	0.48	0.87	1.03	2.53		1.94%
Kratos Defense & Security	KTOS	0.23%	11.87	13.08	76.76%	10.19%	1.03	1.35	1.93	3.27	10.23		
Aerojet Rocketdyne	AJRD	0.57%	20.80	35.01	95.04%	68.32%	1.53	2.57	1.38	20.58	1.94		
AeroVironment	AVAV	0.31%	38.20	54.12	101.71%	41.68%	0.88	1.27	4.66	3.32	3.07		

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