

Commentary

Looking Back at the 3rd Quarter; What to Expect in the 4th

Aerospace and defense investors have long been rewarded for investing in the sector—with the SPADE Defense Index consistently beating the market over time...since at least the Bill Clinton administration and likely the Ronald Reagan administration. History aside, 2020 has been an extremely difficult year so far but a number of factors could see the sector rebound in the next 3-6 months.

A Free White Paper
Historical Stock Market Performance by Presidential Administration and Control of Congress
www.spadeindex.com/defense/election.pdf

A Reversion to the Mean

Year-to-date, the index is down roughly 18% compared to the broader US equity market which, driven by the performance of firms like Amazon, Apple, Microsoft, and Facebook, has eked out a small gain. Such divergence by the

A&D sector to the negative side has no precedent that we can identify.

The reason for the underperformance has been threefold:

(1) A second crash of a Boeing 737-Max 8 in early 2020 effectively shut down production lines for many of the sector’s manufacturers (Those not new to the sector are aware of the significant overlap between the commercial aerospace suppliers and firms producing military-grade hardware.)

(2) The COVID-19 pandemic has effectively shut down passenger air travel especially international flights. This reduced the immediate needs by airline operators to modernize and expand their fleets; instead they sought to preserve capital for the difficult months ahead.

(3) The forthcoming US presidential and congressional elections are weighing on the minds of investors as they consider the uncertainty surrounding future military budgets and what direction the agency, and the country, will take.

Each issue by itself introduced some volatility, but, collectively, many investors have chosen to wait on the

continued on page 3

SPADE Defense Index
30 September 2020 Rebalance

Alleghany Technologies (NYSE: ATI)
ATI produces military-grade titanium, specialty steels, and other materials and components that are used for jet engines, rockets, armoring, land vehicles, structural components for airframes, and naval systems. More than half of its revenues come from A&D clients including Boeing, SpaceX, Aerojet Rocketdyne, Lockheed Martin, Raytheon, etc.

SPADE Defense Index Statistics

9/30/20 Close	6515.94
12/31/19 Close	7969.83
12/31/18 Close	5754.86

All-time Intraday High:
13 February 2020 8613.30

All-time Closing High:
12 February 2020 8599.46

	SPADE Defense	S&P500
3Q20	0.50%	8.47%
2Q20	11.11%	19.95%
1Q20	[26.78%]	[20.00%]
YTD 2020	[18.24%]	4.09%
2019	38.49%	28.88%

Corporate Actions Affecting the Index During the Quarter

None.

Dividend

Invesco’s Defense ETF issued a dividend of 10.5c on September 21.

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 on November 2019.

The Largest US Listed Defense Companies (\$B)

The following table represents the 2019 defense revenues of the largest publicly-traded, US listed firms.

- Globally: US-headquartered companies make up 7 of the top 10--but just 10 of the 25 largest defense companies by revenues in the world are US firms.
- Globally: The 10 largest firms accounted for 50% of the total revenues of the Top 100 Global Defense Firms.

- In the US, the top 10 accounted for 75% of total revenues; the top 25, 90%. (including private firms with \$400M+ in revenues).

- Globally: The top 100 globally reported \$524B in defense revenue, up 7% from \$488B in FY18.
- Companies publicly listed in the United States had total defense revenues of \$285.8B (54% of total global revenues).

For an industry generally regarded as mature, revenue growth that runs 2x global GDP is downright sporty,"

Steve Grundman, Atlantic Council, Senior Fellow

1	Lockheed Martin	\$56,606
2	Raytheon Tech.	40,538
3	Boeing	34,300
4	General Dynamics	29,512
5	Northrop Grumman	28,600
6	L3 Harris	13,917
7	Huntington Ingalls	8,119
8	Leidos	5,364
9	Honeywell	5,326
10	Booz Allen	5,183

11	General Electric	4,400
12	Elbit Systems	4,056
13	CACI	3,490
14	SAIC	3,317
15	Perspecta	3,300
16	Textron	3,271
17	KBR	2,853
18	Jacobs Engineering	2,115
19	Oshkosh	2,032
20	Aerojet Rocketdyne	1,982

21	Parsons*	1,960
22	Mantech*	1,875
23	Transdigm	1,858
24	BWX Technologies*	1,429
25	Vectrus	1,377
26	Howmet*	1,279
27	Ball Aerospace	1,256
28	Viasat	1,138
29	PAE Systems	1,082
30	Moog	1,081

* Indicates SPADE Indexes estimates using data provided by the company in investor presentations, quarterly, or annual reports.

All other defense sector revenues come from research collected by and published in *Defense News*, Vol 35 #5.

31	Curtiss Wright	1,079
32	CAE	1,001
33	FLIR*	780
34	Embraer	775
35	Teledyne Tech	760
36	Woodward*	741
37	AAR	740
38	Heico*	672
39	Cubic	647
40	Mercury Systems	623

41	Triumph Group*	580
42	Axon Technologies*	531
43	Hexcel*	518
44	Kratos*	508
45	Spirit Aerosystems*	500
46	Maxar Tech*	414
47	Kaman*	411
48	Palantir*	401
49	Alleghany Tech	377
50	Ducommun*	364

51	Telephonics	296
52	Comtech*	269
53	OSI Systems	173
54	Iridium*	97
55	RADA*	70

All companies above appear in the SPADE Defense Index except:

GE: Too diversified, defense revenues not detailed.

Embraer: Military activities are non-US.

Telephonics: Division of Griffon (minor part of the conglomerate)

Palantir: Recent IPO

Market Foothold: How Prime Contractors Generate Their Revenues

	Weapons	Sensors	Platforms	Electronic Warfare	Cyber	C4I	Avionics	Other
Lockheed Martin	23.51%	5.98%	61.77%	1.75%	0.22%	6.18%	0.49%	0.10%
Boeing	16.55%	3.72%	66.24%	2.85%	0.12%	7.46%	2.38%	0.79%
General Dynamics	9.30%	1.44%	80.03%	0.40%	0.002%	6.63%	0.09%	2.11%
Raytheon (2019)*	43.76%	20.90%	13.78%	2.93%	0.07%	17.64%	0.82%	0.11%
Northrop Grumman	20.24%	19.07%	27.19%	12.36%	0.75%	18.04%	2.25%	0.11%

Based on 2019 revenues. Raytheon Co. is prior to merger with United Technologies

source: Avascent Analytics / Defense News, 17 August 20, 46

Commentary *(continued from page 1)*

sidelines until a direction and a return-to-normal timeframe is known.

As we overcome the reasons behind the decline (it is only a matter of time), it is likely that a reversion-to-the-mean is forthcoming. Investors who had patience and faith that aerospace and defense stocks will rebound, will benefit. It should be noted that 21 companies in the index, roughly 40%, currently have a price-to-sales ratio less than 1.0 and nearly 70% are below 1.60. The last time we saw numbers like this, the sector had a significant run higher.

Will History Repeat Itself

While it is said that one cannot, and should not, predict future stock market returns based on past performance, there is another somewhat competing philosophy—“the trend is my friend; until proven wrong.” In reviewing performance data back to 1980, a period of forty years, a portfolio tracking the SPADE Defense Index and a backtest prior to 1997, has *never* lost principal if held for 30 months and dividends were reinvested.

The Defense Business is Different

Among those firms hardest hit by the COVID-19 pandemic are retail and consumer facing businesses, including the airlines. Many firms that generate revenues from Pentagon-issued contracts have not been impacted as hard. Over the past few months, the FY20 federal budget, and related spending on defense programs, have not been reduced. In fact, an additional \$10.5 billion was allocated by Congress as part of its economic support packages. These funds have been provided to firms deemed “systematically important,” and helped support a number of manufacturers affected by the commercial aerospace slowdown. Additionally, DoD has accelerated contract payments to a number of prime contractors, who in turn accelerated payments to their subcontractors. We anticipate that some of this stability will be evident when companies report their quarterly earnings.

The 737 Max Flies Again

It is taking significantly longer than many analysts originally envisioned to get the Boeing 737 Max aircraft back in the air. Whereas in the past, an FAA investigation might have suggested a few quick fixes, there has been a lot of political pressure on, and scrutiny of, Boeing to ensure that the investigation was done right.

Combined with COVID-19, the reality is that there hasn't been a great rush to approve the plane for commercial flight; especially with airline operators wanting to delay receipt of new aircraft until their customer base is able to return to flying. As the third quarter ended, regulatory agencies in the United States, Canada, and Europe have moved the process forward toward test flights and it is expected that the aircraft will receive approval by regulators to return to flight during 4Q20.

The Election

No industry is more dependent on the US government budget than defense, so it is understandable that people focus so heavily on who is in power and what their agenda is or might be. The results from the 2020 presidential and congressional elections range from maintaining the status quo to a complete change in government. As we've heard many times from analysts before, the stock market generally prefers certainty over uncertainty. Yet, the performance of the equity market historically has less to do with which political party is in charge than most would expect. It is true that individual policies can encourage winners and losers. Yet, economic and global factors such as those related to interest rate trends and the expansion of new technologies and industries, as well as global safety and stability, each play a greater role to the economy than which political officials and parties are in charge. When it comes to the defense sector, the budget and overall spending on

continued on page 5

YTD, the SPADE Defense Index (DXS) (in black) has not yet rebounded from the market's (in gold) decline earlier this year. Is a reversion to the mean coming in 4Q20?



3Q20 Leaders

1	Maxar	38.86%
2	Kratos Defense	23.35%
3	Cubic Corp	21.11%
4	Moog Inc	19.91%
5	Ball Aerospace	19.61%
6	Honeywell	13.85%
7	Textron	9.66%
8	Jacobs Engineering	9.17%
9	Transdigm	7.48%
10	Booz Allen	5.49%

3Q20 Laggards

1	Hexcel	-40.32%
2	Triumph Group	-27.75%
3	Aerovironment	-24.64%
4	Vectrus	-22.65%
5	Spirit Aerosystems	-21.01%
6	Huntington Ingalls	-19.34%
7	Comtech	-17.11%
8	Perspecta	-16.27%
9	Alleghany Tech	-14.43%
10	Elbit Systems	-12.22%

Morningstar Says:

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

YTD Results

1	Maxar Tech	59.16%	27	Parsons	-18.75%
2	Ball Aerospace	28.53%	28	Textron	-19.08%
3	Axon International	23.77%	29	General Dynamics	-21.50%
4	Booz Allen	16.66%	30	Oshkosh Truck	-22.35%
5	RADA Electronics	14.26%	31	Elbit Systems	-22.42%
6	Mercury Computer	12.08%	32	OSI Systems	-22.96%
7	Howmet	8.57%	33	PAE Systems	-23.77%
8	Jacobs Engineering	7.85%	34	FireEye	-25.29%
9	Kratos Defense	7.05%	35	Moog Inc.	-25.55%
10	Iridium	3.81%	36	Vectrus	-25.87%
11	Lockheed Martin	-1.57%	37	Perspecta	-26.44%
12	Aerovironment	-2.80%	38	KBR	-26.69%
13	Raytheon Tech	-2.99%	39	FLIR Systems	-31.15%
14	Honeywell	-7.00%	40	Woodward	-32.32%
15	Northrop Grumman	-8.28%	41	Curtiss Wright	-33.81%
16	Heico	-8.31%	42	Ducommun	-34.85%
17	Cubic Corp	-8.49%	43	Kaman	-40.88%
18	Leidos	-8.93%	44	Huntington Ingalls	-43.90%
19	BWX Technologies	-9.29%	45	CAE	-44.75%
20	SAIC	-9.88%	46	Boeing Co	-49.27%
21	Teledyne Tech.	-10.48%	47	Viasat	-53.01%
22	Aerojet Rocketdyne	-12.64%	48	Hexcel	-54.24%
23	Mantech Int'l	-13.77%	49	Alleghany Tech	-57.67%
24	L3 Harris	-14.17%	50	AAR Corp	-58.31%
25	CACI	-14.73%	51	Comtech	-60.55%
26	Transdigm	-15.16%	52	Spirit Aerosystems	-74.03%
			53	Triumph Group	-74.24%

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

Exchange / Ticker Symbol:	NYSE / PPA
Assets (9/30/20)	\$690.4 M
Closing Price (9/30/20)	\$55.73
Dividend Yield*	1.89%
3Q20 Volume**	3,462,400
Turnover*	18%
Morningstar Rating	***** (5 Star)

source: * Morningstar & ** Yahoo Finance 10/1/20

Capture Ratio*	3-Yr	5-Yr	10-Yr
Upside	94	106	103
Downside	108	96	72

Portfolio Price / Earnings*	20.37
Portfolio Price / Book*	2.61
Portfolio Price / Sales*	1.31
Portfolio Price / Cash Flow*	11.91
Beta (3-year) *	1.11
Alpha (3-years)*	-2.81
R-squared (3 years)*	72.42
Sharpe Ratio	0.21
Long-Term Earnings*	10.39%
Historical Earnings*	14.15%
Sales Growth*	6.62%
Cash Flow Growth*	1.70%
Book Value Growth*	12.35%
Historical Sustainability Score (% Rank)	73

source: * Morningstar, FactSet 10/1/20

Commentary (continued from page 3)

defense and security can be correlated to how safe one feels. Like holding insurance, you spend more when there is uncertainty, or you are feeling uncomfortable. Dating back to WWII, regardless of which party held the White House or Congress, spending on defense rises when the world feels unstable, whether due to wars, terrorist actions, or other threats. Defense spending declines when we feel comfortable and don't know who or what our next enemy is.

While our recent attention has been focused on the COVID-19 pandemic, dozens of conflicts around the world continue to be fought—accounting for tens of thousands of deaths and an order of magnitude more injuries. Friction between competing ideologies (both external and internal), inside the US and abroad, are rising and could lead to violent acts or terrorism. Tensions with nations and regions such as Russia, China, North Korea, Iran, Turkey, and the Middle East continue to be volatile. It is our belief that whoever and whichever party holds office in the coming years, they will have to deal with these issues. As such, defense and homeland security spending is likely to remain relatively stable.

The Unknown Question on the Horizon

The wildcard, of course, is the COVID-19 pandemic. Many anticipated a fall/winter resurgence, especially as the flu season emerges. We've already seen infection rates rise as many regions relax their restrictions and gathering centers (i.e. universities, social events, political rallies, etc.) bring people in closer proximity. How great an impact this will have in the coming months is an unknown unknown. Likewise, even with a vaccine forthcoming, the impact of COVID-19 will have near-term repercussions. How will nations around the world adjust their planned budgets to compensate for the reduced tax revenues generated by the economic hit from the pandemic? This is an unknown at the current time. What we do know with certainty is that there remains a great need for defense and security. Besides the obvious safety and security elements, defense production and R&D is an activity that nations can easily and rapidly deploy resources to as they seek to get their economies back on track.

By the Numbers

\$740B – National Defense Authorization Act passed by the US House.

\$250B – Amount South Korea plans to invest (2021-2025) in missile defense systems similar to Israel's Iron Dome and new submarines to deter North Korea military threats.

\$62B – DoD is brokering a deal with Taiwan to buy up to 90 **Lockheed Martin** F-16s.

\$23B – **Boeing** received the first delivery order for the USAF F-15EX fighter aircraft.

\$21B – Congressional pandemic relief to the Pentagon, including \$10.5B+ in payments for contractors

\$16B – Qatar increased its acquisition of **Boeing** F-15QA Advanced Eagle fighter jets from 36 to 48 aircraft. The State Dept has approved Qatar for up to 72 aircraft.

\$15B – **Lockheed Martin** for upgrades to C-130J aircraft for US and international allies. The USAF has a fleet of 250 planes.

\$13.3B – USAF contract to **Northrop Grumman** for the Ground Based Strategic Deterrent Next Generation ICBM. Beginning in 2029, GBSD will start replacing the LGM-30G Minuteman III ICBMs which were fielded in 1970

\$12B – Defense investments from Finland in 2021, up 54% compared to 2020.

\$6.46B – Switzerland approved spending in 2021 to replace its fleet of 30 F/A-18 Hornets. Eurofighter (Airbus), Rafale (Dassault), F/A-18 Super Hornet (**Boeing**) and F35-A (**Lockheed Martin**) are under consideration.

\$5B – Estimated amount to be spent by the USAF for national

continued on page 6

PPA Dividend History

YTD	\$0.505	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
2013	\$0.383	2005	\$0.022

By the Numbers

security space rocket launches from 2022-2026. 60% United Launch Alliance (a **Lockheed/Boeing** joint venture) and 40% SpaceX for flights from 2022-2026.

\$2.9B – **SAIC**, from the Army, a 5-year task order to provide mission engineering, integration, software development and other lifecycle support.

\$2.24B – **Boeing**, from the USAF, for the Small Diameter Bomb Increment I weapon program.

\$2.2B – **Raytheon**, from Switzerland, for additional Patriot missiles

\$1.9B – Amount BAE Systems (UK) paid **Raytheon** for its Collins Aerospace military GPS business.

\$1.6B – Up to \$400M each to **Boeing**, **Northrop Grumman**, **Kratos**, and General Atomics as part of the USAF Skyborg program, drones with artificial intelligence.

\$1.5B – **CACI**, from the National Geospatial Intelligence Agency, for transport and cybersecurity services. It is the largest award in the company's history.

\$1B – **Raytheon**, from Hungary, for air defense missiles.

\$960M – **Leidos**, from the Customs and Border Protection Agency to provide software development services and specialized equipment. It is a blanket purchase agreement which includes 1-year base period of performance followed by four 1-year options.

\$950M – **SAIC**, from the Air Force, IDIQ contract to enable Joint All Domain Command and Control.

\$936M – **Lockheed Martin**, from the US Navy, to support F-35 information systems

\$916 M – **Boeing**, from NASA, for International Space Station mission support through 2024.

\$702.9M – **Lockheed Martin**, from the US Army, for additional Hellfire missiles

\$6M – **Leidos**, from the Army, for pilot services, airborne sensor operators, staffing at the Intelligence Coordination Center, logistics, etc.

\$634M – Chile has been approved by the US State Dept to purchase upgrades for its F-16 fighters.

\$579.8M – Pratt & Whitney (**Raytheon**) will supply engines and

By the Numbers

parts for their F135 propulsion system (F-35 fighter jet)

\$450M – **CACI**, from the Department of Homeland Security. A 5-year Blanket Purchase Agreement to provide desktop support services

\$375M – **Raytheon** received from the USAF Research Laboratory for R&D of a miniature self-defense missile

\$298.4M – **Boeing**, from the USAF, for the Evolved Strategic Satellite Communications program

\$272.2M – Bell (**Textron**), helicopters for the Czech Republic under Foreign Military Sales program

\$265M – **Boeing**, from the US Army, for 9 additional MH-47G Block II Chinook helicopters.

\$250M – **Lockheed Martin**, from South Korea, for Peace Krypton recon aircraft support services

\$248.5M – **Raytheon**, from Spain, for 100 Advanced Medium Range Air-to-Air Missiles

\$235.8 M – A **Lockheed** and **Northrop** joint venture, from the US Army, for the AH-64 Apache helicopter fire control radar system.

\$178 M – **Parsons** received a 5-year IDIQ contract by the intelligence community for security and protection and classified and sensitive information, facilities, assets, infrastructure, and personnel worldwide.

100MHz – Spectrum identified by the Pentagon for commercial use and expand 5G availability in the US

134 – Orders received by **Boeing** for 737-800 cargo conversions. These take as little as 90 days.

11 – Options executed by aircraft lessor GECAS for **Boeing** 737-800BCF cargo planes. This brings its total orders to 60 aircraft.

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)

Total Price Return (w/o dividends)

	SPADE Defense Index
1-Yr	38.49%
3-Yr	63.99%
5-Yr	99.67%
10-Yr	310.26%
20-Yr	708.51%

Data through 12/31/19

Index Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
YTD	[18.24%]	4.09%	2233
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]
2009	21.71%	23.45%	[174]

	SPADE Defense Index	S&P500	Alpha (bps)
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 – 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. Each firm is considered to be systematically important to the defense of the United States and defense is systematically important to the business, revenues, and health of the firm.

Full details are available on our website.

* Market Cap: Minimum \$100M

* Share Price: Minimum \$5.00

* Sufficient Liquidity

Legal & Disclaimers

© 2020 SPADE Indexes LLC—SPADE, the SPADE icon, and “The SPADE Investor” newsletter are registered trademarks. SPADE Indexes LLC is the owner of the trademark, service marks, and copyrights related to its indices. This newsletter does not constitute an offer of an investment product. SPADE Indexes LLC makes no representation regarding the advisability of investing in vehicles based on the SPADE Defense Index. All information is provided ‘as is’ for informational purposes only and is not intended for trading purposes or advice. Neither SPADE Indexes LLC nor any related party is liable for any informational error, incompleteness or for any actions taken based on information contained herein.

Contact Information

SPADE Indexes LLC
PO Box 5752
Bethesda, MD 20824-5752
Tel: (202) 596-1812
info@spadeindex.com
<http://www.spadeindex.com>

End of 3Q20		100.00%					Market	Forward	Price/	Price/	PEG	
							Cap	P/E	Sales	Book	5 yr	Div Yld
		Percent	30-Jun-20	30-Sep-20	YTD	QTD	intraday	(ttm)	ttm	mrq	expected	forward %
Company	Ticker	9/30/20	Price	Price	% Ch	% Ch						
AXON International Inc.	AAXN	1.410%	98.13	90.7	23.77%	-7.57%	5.87	66.09	9.94	6.75	5.24	
AAR Corp	AIR	0.172%	20.67	18.8	-58.31%	-9.05%	0.68	10.77	0.35	0.76	1.32	1.51%
Aerojet Rocketdyne	AJRD	0.797%	39.64	39.89	-12.64%	0.63%	3.18	20.01	1.59	4.67	4.16	
AeroVironment	AVAV	0.377%	79.63	60.01	-2.80%	-24.64%	1.48	28.43	4.02	2.82	2.29	
ATI	ATI	0.287%	10.19	8.72	-57.67%	-14.43%	1.16	38.02	0.32	0.64	---	
Boeing Co	BA	8.160%	183.3	165.26	-49.27%	-9.84%	96.66	40.11	1.44	8.23	1.42	
Booz Allen	BAH	3.007%	77.79	82.98	16.66%	6.67%	11.47	20.10	1.51	13.03	1.93	1.49%
Ball Corp	BLL	4.064%	69.49	83.12	28.53%	19.61%	27.41	26.54	2.43	9.91	2.86	0.72%
BWX Technologies	BWXT	1.402%	56.64	56.31	-9.29%	-0.58%	5.41	18.25	2.63	11.23	2.19	1.33%
CACI Intl	CACI	1.397%	216.88	213.16	-14.73%	-1.72%	5.38	13.50	0.94	2.02	1.38	
CAE	CAE	1.015%	16.19	14.62	-44.75%	-9.70%	4.15	38.31	1.56	2.30	3.55	
Comtech	CMTL	0.089%	16.89	14	-60.55%	-17.11%	0.35	16.64	0.57	0.63	1.31	2.85%
Cubic Corp	CUB	0.474%	48.03	58.17	-8.49%	21.11%	1.85	18.14	1.25	2.07	8.73	0.44%
Curtiss Wright	CW	1.040%	89.28	93.26	-33.81%	4.46%	3.98	12.84	1.64	2.32	1.65	0.72%
Ducommun	DCO	0.100%	34.87	32.92	-34.85%	-5.59%	0.40	13.33	0.57	1.27	42.60	
Elbit Systems	ESLT	1.389%	137.05	120.3	-22.42%	-12.22%	5.38	16.11	1.18	2.40	1.57	1.49%
FireEye	FEYE	0.708%	12.18	12.35	-25.29%	1.40%	2.82	43.07	3.08	4.23	0.54	
Flir Systems	FLIR	1.259%	40.57	35.85	-31.15%	-11.63%	4.74	16.14	2.50	2.71	2.71	1.90%
General Dynamics	GD	4.938%	149.46	138.43	-21.50%	-7.38%	40.11	12.30	1.04	2.86	3.23	
Heico	HEI	3.678%	99.65	104.66	-8.31%	5.03%	13.02	48.54	6.82	7.43	7.12	0.15%
Huntington Ingalls	HII	1.500%	174.49	140.75	-43.90%	-19.34%	5.74	12.62	0.64	3.43	4.18	2.93%
Honeywell Intl	HON	7.477%	144.59	164.61	-7.00%	13.85%	116.30	21.20	3.37	6.41	9.82	2.26%
Howmet	HWM	1.891%	15.85	16.72	8.57%	5.49%	7.47	12.95	0.55	2.15	1.19	
Hexcel	HXL	0.733%	56.22	33.55	-54.24%	-40.32%	2.954	25.43	1.44	2.05	3.33	
Iridium	IRDM	0.880%	25.44	25.58	3.81%	0.55%	3.35	114.68	5.88	2.37	4.60	
Jacobs Engineering	J	3.221%	84.8	92.58	7.85%	9.17%	12.16	40.32	0.92	2.07	1.70	0.82%
Kaman	KAMN	0.283%	41.6	38.97	-40.88%	-6.32%	1.10	16.79	1.37	1.37	1.94	2.05%
KBR	KBR	0.828%	22.55	22.36	-26.69%	-0.84%	3.21	12.16	0.55	1.98	2.40	1.79%
Kratos Defense & Security	KTOS	0.537%	15.63	19.28	7.05%	23.35%	2.39	37.4	3.37	2.89	23.63	
Leidos	LDOS	3.284%	93.67	89.15	-8.93%	-4.83%	12.73	14.09	1.10	3.58	1.46	1.53%
L3 Harris	LHX	4.565%	169.67	169.84	-14.17%	0.10%	37.49	13.09	1.56	1.67	1.11	2.00%
Lockheed Martin	LMT	7.298%	364.92	383.28	-1.57%	5.03%	108.15	14.45	1.71	28.56	1.77	2.71%
Mantech International'a'	MANT	0.723%	68.49	68.88	-13.77%	0.57%	2.79	20.28	1.15	1.82	3.16	1.86%
Maxar Technologies	MAXR	0.390%	17.96	24.94	59.16%	38.86%	1.56	5.14	0.95	1.73	1.25	0.15%
Moog Inc.	MOGA	0.576%	52.98	63.53	-25.55%	19.91%	2.11	16.98	0.72	1.69	1.73	1.57%
Mercury Computer Sys	MRCY	1.107%	78.66	77.46	12.08%	-1.53%	4.36	29.74	5.46	3.07	1.55	
Northrop Grumman	NOC	6.522%	307.44	315.49	-8.28%	2.62%	52.93	12.52	1.52	5.43	1.68	1.84%
OSI Systems	OSIS	0.365%	74.64	77.61	-22.96%	3.98%	1.42	15.29	1.21	2.48	0.96	
Oshkosh Truck	OSK	1.306%	71.62	73.5	-22.35%	2.62%	5.04	12.90	0.69	1.81	2.58	1.63%
PAE Systems	PAE	0.111%	9.56	8.5	-23.77%	-11.09%	0.81	65.36	0.43	7.05		
Perspecta	PRSP	0.816%	23.23	19.45	-26.44%	-16.27%	3.10	10.52	0.69	2.31	1.98	1.44%
Parsons	PSN	0.882%	36.24	33.54	-18.75%	-7.45%	3.42	22.92	0.85	2.05		
RADA Electronics	RADA	0.060%	6.54	5.93	14.26%	-9.33%	0.26	39.93	4.48	3.92		
Raytheon Technologies	RTX	6.125%	61.62	57.54	-2.99%	-6.62%	88.96	40.16	0.75	1.31	1.56	3.30%
SAIC	SAIC	1.188%	77.68	78.42	-9.88%	0.95%	4.57	10.83	0.68	3.17	0.98	1.89%
Spirit Aerosystems	SPR	0.518%	23.94	18.91	-74.03%	-21.01%	2.09	16.42	0.37	1.64	0.07	0.21%
Transdigm	TDG	3.880%	442.05	475.12	-15.16%	7.48%	26.36	40.81	4.79	6.26	206.41	
Teledyne Technologies	TDY	2.962%	310.95	310.21	-10.48%	-0.24%	11.52	28.07	3.64	4.00	1.12	
Triumph Group	TGI	0.088%	9.01	6.51	-74.24%	-27.75%	0.38	15.93	0.14	0.36	1.19	1.78%
Textron	TXT	2.150%	32.91	36.09	-19.08%	9.66%	8.30	14.19	0.66	1.49	4.75	0.22%
Vectrus	VEC	0.114%	49.13	38	-25.87%	-22.65%	0.44	8.85	0.31	1.65		
Viasat Inc	VSAT	0.558%	38.37	34.39	-53.01%	-10.37%	2.36	870.63	1.02	1.06	4.35	
Woodward	WWD	1.297%	77.55	80.16	-32.32%	3.37%	5.26	24.98	1.94	2.63	13.92	0.41%

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