

Quick Facts

- World is in a “crisis on top of a crisis”
- Waning interest in Ukraine led to investor fatigue in 3Q23
- Those holding have been rewarded as defense stocks have surged since Hamas attacked Israel.
- Historically strong support in Congress should lead to new military aid for Israel.
- Defense firms continue to hold record backlogs.
- Change in leadership for the US House of Representatives remains a wildcard.
- Forecast for 4Q23 and 2024 remains strong.
- Invesco ETF (NYSE: PPA) rebounds to all time high in early October.

SPADE Defense Index Statistics

9/30/23 Close	9,351.80
12/31/22 Close	9,180.25

All-time Intraday High:
12 July 2023 10,071.17

All-time Closing High:
7 August 2023 10,020.72

Price Return	SPADE Defense	S&P500
2023 YTD		
3Q23		
2Q23	4.83%	8.30%
1Q23	2.82%	7.03%
2022	8.56%	[19.44%]

Commentary (update)

Impact of Recent Events in Israel and Ukraine on Defense Stocks

The state of the world at the current time is a “Crisis on Top of a Crisis.”

While the news is focused heavily on Israel at the current time, it is not the only world event impacting defense stocks. To analyze the sector, one needs to consider all of the following elements.

1. War between Ukraine / Russia
2. War between Israel and Hamas
3. Disfunction in the US House of Representatives

Each of these impacts the others...For example, will increased support of Israel’s defense impact funding for Ukraine? (Our guess is no.) If there is no Speaker of the House, will the US defense budget be approved in November? Will the House find a means to support efforts in Ukraine and Israel? Politics is an unknown risk at the moment?

Continued on page 2

**SPADE Defense Index
September 2023 Rebalance**

Planet Labs was removed; it currently does not meet the price rules of the index.

Corporate Actions Affecting the Index During the Quarter

The L3Harris acquisition of Aerojet Rocketdyne closed.

Dividend

Invesco’s Aerospace & Defense ETF issued a dividend of \$0.117 on 18 September 2023. Over the past 12 months, \$0.428 per share has been returned.

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).

A Morningstar 4-Star Fund

Options Trading

Options on the Invesco Aerospace and Defense ETF (ticker: PPA) are available.

Commentary (continued from page 1)

Defense Investing Prior to Hamas attack on Israel

In 2022, mostly in response to the Russian invasion of Ukraine, defense stocks surged, outperforming the broader US market by nearly 30%. During 2023, however, the SPADE Defense Index, though positive for the year, has been underperforming the broader US stock market (led by several large technology firms) by roughly 10%. Limiting gains in defense stocks this year has been:

- Manufacturing supply chain issues, in areas such as specialized semiconductors, that have limited the ability of firms to produce hardware and weapons destined for Ukraine or to replenish US stockpiles. This is slowly being rectified and a significant increase of activity is expected for 2024.
- Turmoil in Congress. A number of members of Congress (both parties) have been reluctant to continue to fund the Ukrainian war effort and have focused on its cost—even though it could turn the war in Russia's favor and possibly result in putting US troops at risk at some point in the future. The majority of the Senate and more than half the House of Representatives support the aid, however, the Republican Party has a slim minority and has been trying to cater to a few politicians.
- Investor fatigue and waning interest in Ukraine. It's been nearly 600 days since Russia invaded Ukraine and what once was the lead story on US news on a daily basis, has taken a back seat to other events. Videos and news from this war have become commonplace and similar to that which happens day after day. Some investors have turned their attention toward interest rates that provide opportunities for 5%+ returns with limited risk and the performance gains from tech stocks like Nvidia...despite recognizing that defense stocks have become undervalued in this market.

Israel and Hamas

Investors who held onto the sector were rewarded on October 9th as defense stocks surged and investors returned to the sector. A number of firms saw gains of 5%-10%+ on the day.

- A pre-emptive strike by Hamas targeting and killing music festival partygoers, farmers, children, and elderly people (including holocaust survivors) has weakened the position of those taking a pro-Palestinian stand. Israel likely has about a month of "goodwill" from the US and Europe to do whatever they want before there is public concern they are going too far.

- The aftermath of a terror attack some call Israel's 9-11 is doing something no other political issue has in recent years...bring together both political parties in the US Congress to support Israel.

- Historically there has been strong support in the US Congress for military aid to Israel. In contrast to providing funds supporting Ukraine, military support for Israel has been debated for decades. Funding (\$5B+) to support Israel is highly likely to pass.

- The religious right in the United States has been a strong supporter of Israel's statehood believing it, along with a battle for Jerusalem, is consistent with Biblical prophecy.

- Though the United States and Israel have stated that they have no proof at the current time that Iran is involved, there is a near-100% chance this is deceptive. The only source for the type of missiles (and in quantity) used by Hamas would be Iran. They have long been a sponsor of Palestinian activities to disrupt Israel, and Hamas likely does not have the resources to buy these on the open market.

- We put a 60% chance that once Israel "stabilizes" the local situation around Gaza, there is an attack on Iranian defense facilities that manufacture missiles, drones, and the nuclear development sites that many nations want to see targeted. Key is if Israel is backed by the United States, to ensure that other nations in the region remain uninvolved. The 40% balance is related to concern on how things might escalate (i.e., Hezbollah in Lebanon taking direct action against Israel, an uprising in the West Bank, etc.) as this would delay stabilization.

- What this means for Ukraine funding...is unknown at this time. Though the Israel-Hamas war has created an element of fear and unknown (usually good for defense stocks), it will solely depend on who eventually is made Speaker of the House, their position on supporting Ukraine, and, most importantly, the concessions they

Commentary (continued from page 2)

agree to in order to become Speaker. There is still significant backing for supporting Ukraine as recent public opinion polls remain greater than 60%, though this is down significantly from earlier in the war.

Disfunction in Congress

- Politics is a black swan for defense stocks. All the analysis and trending one can do to research the defense sector or individual stocks can be for naught if politicians in Congress or the White House decide they want to suddenly go in a different direction. Historically, when the world is in turmoil, the defense budget typically receives significant support. Earlier in 2023, Congress and the White House agreed on a defense spending plan that would remain at record highs for the next two budget cycles. The removal of the Speaker of the House of Representatives Kevin McCarthy in early October adds some unknown to the budget, when it will be agreed to, and whether the earlier budget agreement as part of the debt deal will be honored (we believe it will).

Other Issues Raising the Global Danger Level

With so much attention focused on the Israel-Hamas and Russia-Ukraine conflicts, other very dangerous actions are happening. Piece by piece, some analysts are starting to believe that the dominoes leading to a World War III have begun to fall.

Russia and North Korea

- Following a rare meeting between Vladimir Putin and Kim Jong Un at a space launch center in mid-September, train traffic between the two nations has increased. This is triggering alarm from South Korea, Japan, Ukraine, and others. Russia needs fresh supplies of ammunition and shells to feed its war of attrition in Ukraine and Pyongyang is believed to be sitting on a stockpile of military hardware. In return, North Korea needs energy, food, and military technology, all of which Russia could supply.

Azerbaijani Offensive in Nagorno-Karabakh

- On 19/20 September 2023, Azerbaijan launched a large-scale military offensive against the self-declared breakaway state of Artsakh, internationally recognized as part of Azerbaijan but populated by Armenians. Human rights organizations state that ethnic cleaning

and genocide is occurring. Armenia has a bilateral relation with NATO since 1994 although it is also a member of the Collective Security Treaty Organization (an alternative Russian-led alliance).

China

- China is looming in the background. As multiple actions take place threatening the periphery of Europe, tensions and military actions flare up in the Middle East, and some politicians in the United States debate taking a more isolationist philosophy, China would be remiss if it didn't ponder whether taking action against Taiwan at this time would be largely ignored by other nations.

Turkey

- Several days prior to the Hamas attack on Israel, Turkey struck Kurdish-held areas in Syria, killing eight. With the Middle East destabilized, ramping up efforts in the region could escalate tensions.

What Does All This Mean for Defense Stocks

The stock market overall prefers known knowns and stability whereas defense stocks tend to thrive when people feel less safe and stable; acting as insurance against a world in conflict. Based on what is happening in Ukraine and Israel, we believe it is likely that defense stocks simply went through a pause in early 2023 and will remain a strong sector play for the balance of 2023 and 2024. The risk to this forecast is Congressional action (or inaction); however, a long history of support for Israel should tip the balance and lead to strong defense spending for the US and in support of our allies.

Mergers, Acquisitions, and Spinoffs on the Horizon

- Heico (HEI) completed its acquisition of Wencor Group (private) in August 2023 for \$2 billion, adding \$724M in revenues and \$153M in EBITDA.
- Mercury Computer (MRCY) announced its board decided to not sell the company.
- Ball (BALL) is being acquired by BAE Systems (London: BA) for \$5.6 Billion in order to expand its spacecraft and space sensors business activity. Closing is expected in 1H24.
- Jacobs (J) to spinoff its defense operations 4Q24.

3Q23 Leaders

1	Textron	15.54%
2	Jacobs	14.81%
3	Parsons	12.90%
4	Oshkosh Truck	10.21%
5	Aerovironment	9.045%
6	Mercury Computer	7.23%
7	Curtiss Wright	6.52%
8	Eaton	6.06%
9	BWX Technologies	4.76%
10	Kratos	4.74%

3Q23 Laggards

1	Viasat	[55.26%]
2	Spirit Aerosystems	[44.71%]
3	Triumph Group	[38.08%]
4	Iridium	[26.77%]
5	RTX / Raytheon	[26.53%]
6	Keysight Tech	[20.99%]
7	Barnes	[19.48%]
8	Kaman	[14.48%]
9	Ball Aerospace	[14.31%]
10	Hexcel	[11.17%]

Morningstar Says:

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

2023 YTD Results

1	Palantir	149.22%
2	OSI Systems	48.44%
3	Kratos Defense	45.54%
4	ATI	37.81%
5	Eaton	35.89%
6	Transdigm	33.90%
7	Parker Hannifan	33.86%
8	AAR Corp	32.58%
9	General Electric	31.94%
10	Leonardo DRS	30.67%
11	Aerovironment	30.20%
12	BWX Technologies	29.10%
13	Moog	28.71%
14	Woodward	28.62%
15	V2X	25.12%
16	CAE	20.73%
17	Elbit Systems	20.69%
18	AXON International	19.92%
19	Parsons	17.51%
20	Howmet	17.36%
21	Curtiss Wright	17.15%
22	Jacobs Engineering	13.68%
23	KBR	11.63%
24	Hexcel	10.69%
25	Textron	10.37%
26	Oshkosh Truck	8.21%

27	Heico	5.40%
28	Booz Allen	4.54%
29	CACI	4.44%
30	Teledyne Tech.	2.17%
31	Boeing	0.62%
32	Ball Aerospace	[2.66%]
33	SAIC	[4.86%]
34	General Dynamics	[10.94%]
35	Huntington Ingalls	[11.31%]
36	Iridium	[11.50%]
37	Kaman	[11.88%]
38	Leidos	[12.39%]
39	Ducommun	[12.91%]
40	Honeywell	[13.79%]
41	TTM Technologies	[14.59%]
42	Lockheed Martin	[15.94%]
43	L3 Harris	[16.37%]
44	Barnes	[16.84%]
45	Mercury Computer	[17.10%]
46	Northrop Grumman	[19.32%]
47	Keysight Tech.	[22.66%]
48	Triumph Group	[27.19%]
49	Comtech	[27.92%]
50	Raytheon	[28.69%]
51	Viasat	[41.67%]
52	Spirit Aerosystems	[45.47%]

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

Exchange / Ticker Symbol:	NYSE / PPA
Assets (9/30/23)	\$ 1.9B
Closing Price (9/30/23)	\$79.80
Dividend Yield*	1.15%
3Q23 Volume**	5,556,000
Turnover*	19%
Morningstar Rating	**** (4-Star)

source: * Morningstar & ** Yahoo Finance 9/30/23

Capture Ratio*	3-Yr	5-Yr	10-Yr
Upside	99	94	104
Downside	70	88	77

Portfolio Price / Earnings*	21.42
Portfolio Price / Book*	3.13
Portfolio Price / Sales*	1.73
Beta (3-year) *	0.95
Alpha (3-years)*	7.30
R-squared (3 years)*	56.73
Long-Term Earnings*	9.75%
Historical Earnings*	2.77%
Sales Growth*	0.52%
Cash Flow Growth*	-5.45%
Book Value Growth*	6.97%

source: * Morningstar 9/30/23

By the Numbers

\$12B - State Department approved a potential sale of military equipment to Poland including 96 Boeing AH-64E Apache attack helicopters and other weapons.

\$7.9B - Leidos from the US Army to provide tactical IT hardware solutions for Joint All-Domain Command and Control and Multi-Domain Operations.

\$7.8B - Vietnam Airlines ordered 50 Boeing 737 Max aircraft.

\$5.5B - Raytheon's Pratt and Whitney signed a modification with the US Air Force to enhance engine services for the C-17 Globemaster III aircraft used by the US and 8 international partners.

\$4.5B - GAO gave a green light to the General Dynamics Information Technology and the US Air Force to provide security support services for 5 years with an option to extend for 5 more.

\$3.7B - Boeing received an order for 25 fuel-efficient 737 Max aircraft from SMBC Aviation Capital.

\$2.8B - Boeing took delivery from Raytheon's AESA radar as part of a program to upgrade the radar capabilities of the USAF fleet of B-52 bombers.

\$2.7B - Navy to Lockheed Martin-owned Sikorsky to deliver 35 CH-53K heavy-lift helicopters, 8 of which are bound for Israel through foreign military sales.

\$2B - Defense Department added \$235M contract modification to Northrop Grumman for the Next-Generation Overhead Persistent IR polar satellites.

\$1.5B - The Space Development Agency awarded contracts to Lockheed Martin (\$816M) and Northrop Grumman (\$733M) for prototype communications satellites.

\$1.3B - Bell (Textron) has a contract to replace around 2,000 Black Hawk utility helicopter starting in 2030.

\$1.1B - US Navy awarded Lockheed Martin a contract (valued with options) to create the Integrated Combat System that can connect Navy and Coast Guard Fleets.

\$1B - forecast at its investor day service revenue in 2030, with narrowband IoT ambitions.

\$1B - Spirit AeroSystems aims to achieve this level of revenue by 2025 by expanding its focus to include hypersonics, unmanned aerial systems, next generation effects, next-generation aircraft, and space.

\$974M - General Dynamics as a vendor for the US Army for 155mm M1128 mobile gun systems.

\$967M - US Navy to General Dynamics Electric Boat ion to support Virginia class fast attack submarines.

\$753.8M - US Navy to General Dynamics subsidiary NASSCO for depot maintenance of two Arleigh Burke-class ships.

\$705M - USAF to Northrop Grumman to develop a new air-to-ground missile for the F-35 JSF fighter. The USAF plans to acquire 400 of these missiles by 2028 at a total cost of around \$8.4 billion.

\$607M - Navy to Lockheed to buy long-lead time materials, parts, and components to build 173 F-35s for Foreign Military Sales customers.

\$513M - Northrop from DoD for a pair of radar systems including 14 Ground/Air Task Oriented Radar systems.

\$486.9M - Ball Aerospace from NOAA for a GeoXO sounder for the next-generational weather program.

\$257.6M - General Dynamics Land Systems from the US Army for M10 Booker combat vehicles.

\$200M - Elbit Systems to supply C4I capabilities and hostile fire counter-attack solutions for artillery units.

\$150.9M - The US Army to Booz Allen for R&D in disruptive intelligence, surveillance, and reconnaissance.

PPA Dividend History

YTD	\$0.353	2016	\$0.708		
2022	\$0.647	2015	\$0.501		
2021	\$0.426	2014	\$0.215	2009	\$0.202
2020	\$0.598	2013	\$0.383	2008	\$0.145
2019	\$0.651	2012	\$0.444	2007	\$0.055
2018	\$0.444	2011	\$0.199	2006	\$0.051
2017	\$0.363	2010	\$0.155	2005	\$0.022

Total Return
(Annual %)

	SPADE Defense Index
1-Yr	24.34%
3-Yr	13.50%
5-Yr	6.28%
10-Yr	12.34%
15-Yr	12.08%
Inception	10.91%

Through 6/30/2023
(Morningstar)

Index Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
YTD	1.87%	11.68%	[981]
2022	8.56%	[19.44%]	2800
2021	6.61%	26.89%	[2028]
2020	[0.73%]	16.26%	[1699]
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]

	SPADE Defense Index	S&P500	Alpha (bps)
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]

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—naval vessels, military aircraft, armored vehicles, helicopters, drones and remotely piloted vehicles, missiles and missile defense, command and control, secure communications, battlespace awareness, intelligence and reconnaissance, and space systems, as well as national/homeland security activities including border security, biometric screening systems, and military cybersecurity efforts.

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

Rules

The SPADE Defense Index was designed to be RIC (registered investment company) compliant for the purpose of enabling financial products. Companies are required to meet an eligibility criteria that includes market valuation (>\$250M), listing on a major U.S. exchange, and have sufficient liquidity. Importantly, each firm must be considered systematically important to the defense of the United States and that their defense business is systematically important to the revenues and health of the firm. We follow an enhanced modified market cap methodology that employs the True Cap™ strategy, which enables the index to more accurately handle firms with diversified operations.

Full details are available at: www.spadeindex.com/defense

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Contact Information

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

US Security Assistance to Ukraine (21 September 2023)

The United States has provided \$43.9 billion in security assistance since Russia invaded Ukraine.

Air Defense

Patriot Air Defense Battery and Munitions	1
AIM-7, RIM-7, and AIM-9M missiles	No qty listed
Stinger Anti-Aircraft Systems	2,000
Avenger Air Defense Systems	20+
c-UAS mobile laser guided rocket	10
C-UAS Gun Trucks and Ammo	9+
Anti-Aircraft Guns and Ammo	No qty listed
National Advanced Surface to Air Missile Systems	12
HAWK air defense systems and munitions	No qty listed
VAMPIRE counter-UAS and munitions	No qty listed
Air surveillance radars	21

Fires

High Mobility Artillery Rocket Systems (HIMARS) and ammo	38
Precision guided 155mm artillery rounds	7,000+
155mm Howitzers	198
155mm Artillery rounds	2 M +
155mm Rounds of remote Anti-armor mine systems	20,000+
105mm Howitzers	72
105mm Artillery Rounds	500,000+
203mm Artillery Rounds	10,000
152mm Artillery Rounds	200,000+
130mm Artillery Rounds	~40,000
122mm Artillery Rounds	40,000
122mm GRAD Rockets	60,000
120mm Mortar systems	47
82mm Mortar systems	10
81mm Mortar systems	122
60mm Mortar systems	58
Mortar Rounds	400,000+
Counter Artillery and Counter Mortar Radars	70+
Multi-Mission Radars	20

Maritime

Harpoon Coastal Defense Systems	2
Coastal and Riverine Patrol Boats	62
Unmanned coastal defense vessels	No qty listed

Other

Mentioned in a previous update: Night vision devices, surveillance systems, thermal imaging optics, laser rangefinders (thousands); generators, satellite communications terminals and systems; commercial satellite imagery; satellite communications antennas (4); port and harbor security equipment, M18A1 Claymore anti-personnel munitions; armored utility trucks (6), 25mm Ammunition rounds (1.8M); 125mm tank ammunition rounds (100,000)

Ground Maneuver

Abrams Tanks	31
T-72B Tanks	45
Bradley Infantry Fighting Vehicles	186
Bradley Fire Support Team Vehicles	4
Stryker Armored Personnel Carrier	189
M113 Armored Personnel Carrier	300
M117 Armored Security Vehicles	250
MRAPS Mine Resistant Ambush Protected Vehicles	500+
High Mobility Multipurpose Wheeled Vehicles	2,000+
Light Tactical Vehicles	100+
Armored Medical Treatment Vehicles	300
Trucks/Trailers to Transport Heavy Equipment	68/124
Command Post Vehicles	10
Tactical Vehicles to Tow Weapons	600
Tactical Vehicles to Recover Equipment	131
Ammunitions Support Vehicles	30
Logistics Support Vehicles	8
Mine clearing equipment and systems	No details
Armored bridging systems	18
Fuel tankers / Fuel trailers / Water trailers	239 / 105 / 58

Anti-armor and Small Arms

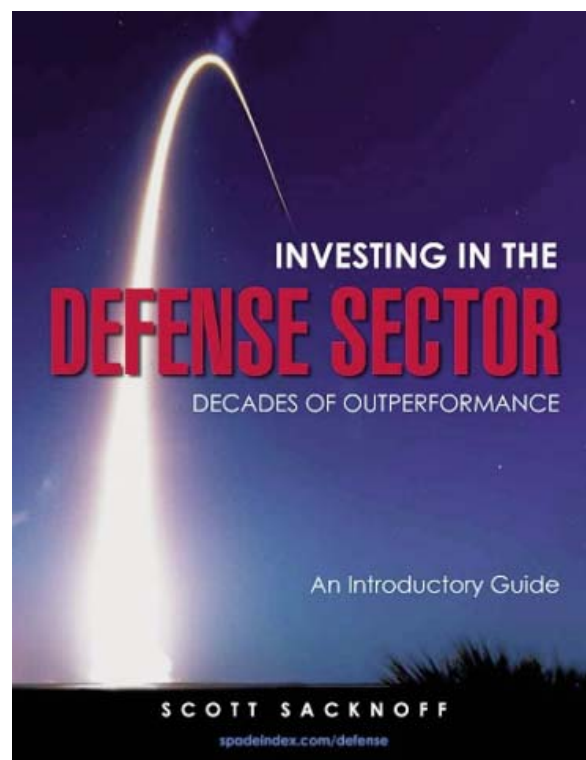
Javelin Anti-Armor Systems	10,000+
Other Anti-Armor Systems	80,000+
Tube-launched optically tracked Wire-guided TOW missiles	7,000+
Grenade launchers and small arms	35,000+
Rounds of small arms ammunitions and grenades	300M +

Aircraft and Unmanned Aerial Systems

Mi-17 Helicopters	20
Switchblade Tactical Unmanned Aerial Systems	No qty listed
Phoenix Ghost Tactical UAS, Penguin UAS	No qty listed
UAS: CyberLux K8, Altius-600, Jump-20, Hornet	No qty listed
Puma Unmanned Aerial Systems	No qty listed
Scan Eagle UAS	No qty listed
Hydra-70 Aircraft Rocket	20,000+
Zuni Aircraft Rockets	6,000+
High-speed anti-radiation missiles	No qty listed
Precision Aerial Munitions	No qty listed

Download a free copy of our 56-page guide,
Investing in the Defense Sector

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www.spadeindex.com/defense

End of September 2023		100.0%						Market	Forward	Price/	Price/	PEG	
		Percent	30-Jun-23	30-Sep-23	YTD	QTD		Cap	P/E	Sales	Book	5 yr	Div Yld
Company	Ticker	30-Sep-23	Price	Price	% Ch	% Ch		intraday	(ttm)	ttm	mrq	expected	forward %
Palantir	PLTR	1.06%	15.33	16.00	149.22%	4.37%		32.76	59.26	16.02	11.64	0.83	
OSI Systems	OSIS	0.33%	117.83	118.04	48.44%	0.18%		1.98	13.82	1.55	2.72	1.94	
Kratos Defense & Security	KTOS	0.51%	14.34	15.02	45.54%	4.74%		1.92	30.04	1.99	2.03	19.62	
ATI	ATI	0.94%	44.23	41.15	37.81%	-6.96%		5.29	14.39	1.28	4.43	0.12	
Eaton	ETN	2.61%	201.1	213.28	35.89%	6.06%		85.10	21.83	3.86	4.74	2.07	1.61%
Transdigm	TDG	4.02%	894.17	843.13	33.90%	-5.71%		46.53	27.03	7.45	19.42	1.33	
Parker Hannifan	PH	3.11%	390.04	389.52	33.86%	-0.13%		50.06	15.53	2.63	4.84	1.56	1.51%
AAR Corp	AIR	0.55%	57.76	59.53	32.58%	3.06%		2.10	13.78	1.00	1.84		
General Electric	GE	5.44%	109.85	110.55	31.94%	0.64%		120.32	25.53	1.49	3.86	1.65	0.29%
Leonardo DRS	DRS	1.05%	17.34	16.70	30.67%	-3.69%		4.38	20.12	1.65	2.00	2.87	
AeroVironment	AVAV	0.77%	102.28	111.53	30.20%	9.04%		2.93	35.41	5.02	5.07	2.26	
BWX Technologies	BWXT	1.46%	71.57	74.98	29.10%	4.76%		6.86	24.19	2.95	8.15	8.87	1.23%
Moog Inc.	MOGA	0.56%	108.43	112.96	28.71%	4.18%		3.60	16.83	1.12	2.22	2.74	0.95%
Woodward	WWD	1.26%	118.91	124.26	28.62%	4.50%		7.51	25.67	2.70	3.58	1.38	0.70%
V2X	VVX	0.37%	49.59	51.66	25.12%	4.17%		1.61	19.95	0.42	1.62		
CAE	CAE	1.87%	22.38	23.35	20.73%	4.33%		7.47	20.48	1.73	1.65	2.94	
Elbit Systems	ESLT	2.32%	208.96	197.98	20.69%	-5.25%		8.79	25.35	1.54	3.14	2.65	1.01%
AXON International Inc.	AXON	3.48%	195.12	198.99	19.92%	1.98%		14.88	51.69	10.89	10.30	1.52	
Parsons	PSN	0.59%	48.14	54.35	17.51%	12.90%		5.70	20.90	1.20	2.69	2.23	
Howmet	HWM	3.16%	49.56	46.25	17.36%	-6.68%		19.07	21.82	3.08	5.12	1.24	0.43%
Curtiss Wright	CW	1.32%	183.66	195.63	17.15%	6.52%		7.49	19.54	2.75	3.50	0.16	0.40%
Jacobs Engineering	J	1.28%	118.89	136.50	13.68%	14.81%		17.19	16.27	1.08	2.63	2.04	0.76%
KBR	KBR	1.68%	65.06	58.94	11.63%	-9.41%		7.95	16.28	1.19	4.92	1.48	0.91%
Hexcel	HXL	1.28%	76.02	65.14	10.69%	-14.31%		5.50	25.05	3.22	3.30	1.01	0.73%
Textron	TXT	2.98%	67.63	78.14	10.37%	15.54%		15.48	13.40	1.18	2.20	0.85	0.10%
Oshkosh Truck	OSK	0.45%	86.59	95.43	8.21%	10.21%		6.23	10.41	0.70	1.83	0.26	1.70%
Heico	HEI	1.91%	176.94	161.93	5.40%	-8.48%		19.65	47.91	7.44	7.61	3.74	0.12%
Booz Allen	BAH	2.59%	111.60	109.27	4.54%	-2.09%		14.32	19.44	1.48	14.09	2.12	1.71%
CACI Intl	CACI	1.40%	340.84	313.93	4.44%	-7.90%		7.11	14.19	1.06	2.22	2.35	
Teledyne Technologies	TDY	1.37%	411.11	408.58	2.17%	-0.62%		19.23	19.71	3.44	2.24	3.55	
Boeing Co	BA	6.18%	211.16	191.68	0.62%	-9.23%		115.62	42.79	1.57	7.45	0.63	
Ball Corp	BALL	0.60%	58.21	49.78	-2.66%	-14.48%		15.68	15.13	1.08	4.09	5.23	1.66%
SAIC	SAIC	1.11%	112.48	105.54	-4.86%	-6.17%		5.59	13.80	0.73	3.04	3.28	1.41%
General Dynamics	GD	4.78%	215.15	220.97	-10.94%	2.71%		60.33	14.81	1.48	3.09	1.63	2.39%
Huntington Ingalls	HII	2.05%	227.60	204.58	-11.31%	-10.11%		8.16	12.32	0.75	2.24	2.17	2.42%
Iridium	IRDM	0.40%	62.12	45.49	-11.50%	-26.77%		5.69	162.46	7.33	5.69	5.17	1.14%
Kaman	KAMN	0.11%	24.33	19.65	-11.88%	-19.24%		0.56	23.67	0.73	0.81	3.56	4.07%
Leidos	LDOS	2.26%	88.48	92.16	-12.39%	4.16%		12.66	12.47	0.85	2.75	1.74	1.56%
Ducommun	DCO	0.16%	43.57	43.51	-12.91%	-0.14%		0.63	13.11	0.85	1.02	1.12	
Honeywell Intl	HON	4.36%	207.50	184.74	-13.79%	-10.97%		122.66	18.36	3.39	7.09	2.55	2.19%
TTM Technologies	TTMI	0.14%	13.90	12.88	-14.59%	-7.34%		1.34	9.27	0.56	0.87	0.60	
Lockheed Martin	LMT	6.32%	460.38	408.96	-15.94%	-11.17%		102.99	14.56	1.53	11.11	1.23	2.93%
L3 Harris	LHX	4.52%	195.77	174.12	-16.37%	-11.06%		32.93	12.98	1.83	1.79	12.33	2.62%
Barnes Corp	B	0.16%	42.19	33.97	-16.84%	-19.48%		1.72	13.53	1.32	1.25	1.64	1.87%
Mercury Computer Sys	MRCY	0.57%	34.59	37.09	-17.10%	7.23%		2.20	20.49	2.26	1.35	6.92	
Northrop Grumman	NOC	6.49%	455.80	440.19	-19.32%	-3.42%		66.60	17.84	1.76	4.30	10.19	1.70%
Keysight Tech.	KEYS	0.69%	167.45	132.31	-22.66%	-20.99%		23.50	17.07	4.20	4.80	3.76	
Triumph Group	TGI	0.15%	12.37	7.66	-27.19%	-38.08%		0.59	10.08	0.43	0.71	1.73	
Comtech	CMTL	0.06%	9.14	8.75	-27.92%	-4.27%		0.24	10.94	0.46	0.55	0.92	4.67%
Raytheon Technologies	RTX	6.39%	97.96	71.97	-28.69%	-26.53%		104.75	12.90	1.48	1.45	1.28	3.28%
Viasat Inc	VSAT	0.32%	41.26	18.46	-41.67%	-55.26%		2.29	14.42	0.83	0.39	1.71	
Spirit Aerosystems	SPR	0.45%	29.19	16.14	-45.47%	-44.71%		1.70	28.32	0.32	2.69	0.07	
Data Provided by Morningstar, Yahoo Finance/Thomson Reuters (PEG), Morningstar (div)								1237.42					