

Quick Facts

- The SPADE Defense Index ended the quarter at 9894.35, a historic high.
- Global defense spending increased 3.7% in 2022 to \$2.24 Trillion.
- Defense budgets in European countries were up 13% to bolster defenses.
- New NATO members Finland (and soon Sweden) to boost defense spending.
- Record backlog at RTX and Lockheed Martin of nearly \$340 Billion.
- Boeing’s commercial aircraft backlog represents 6.7 to 11.2 years of operation.
- Biden Administration proposed \$842 Billion defense budget is the largest ever.
- Invesco’s Aerospace & Defense ETF (NYSE: PPA) remains near historic highs in share price, shares outstanding, and total assets, roughly \$1.94 billion.

SPADE Defense Index Statistics

6/30/23 Close	9894.35
12/31/22 Close	9180.25

All-time Intraday High:	
30 June 2023	9934.12

All-time Closing High:	
30 June 2023	9894.35

Price Return	SPADE Defense	S&P500
2023 YTD	7.78%	15.91%
2Q23	4.83%	8.30%
1Q23	2.82%	7.03%
2022	8.56%	[19.44%]

Commentary (update)

If this commentary looks familiar, it is because we will be addressing many of the same themes as we did at the beginning of 2Q23. I encourage readers to check it out.

- How do we expect the aerospace and defense sector to perform in 2H23?
- In 2022, in reaction to the Russian invasion of Ukraine, defense stocks outperformed the market by nearly 30%. However, in 2023, the sector, though up nearly 8% YTD, has underperformed the broader US stock market. We address some reasons why.
- How and when will Russia’s invasion of Ukraine end?

* * *

How Do We Expect the Aerospace and Defense Sector to Perform in 2H23?

The age old question for thematic investors is, “where in the cycle are we—is it time to buy, hold, or sell?” For defense investors, one should consider (a) How great is the wall of worry? and (b) How are the defense-adjacent businesses performing (ie. commercial aviation, space, homeland security)?

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SPADE Defense Index June 2023 Rebalance

Barnes (NYSE: B) was added.

Corporate Actions Affecting the Index During the Quarter

The acquisition of Maxar closed in 2Q23. Aerojet Rocketdyne is on track to close in 2H23 but still faces some obstacles to its approval.

Dividend

Invesco’s Aerospace & Defense ETF issued a dividend of \$0.127 on 20 June 2023. Over the past 12 months, \$0.488 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)

Factoring in the information we discuss below, **we believe that the defense cycle is still in its early innings; the impact of which will be felt in the coming quarters and into 2024 and 2025.**

Fact 1: The world is becoming increasingly dangerous

Black swan events can quickly escalate and benefit holders of defense stocks.

- Vladimir Putin calls the war with Ukraine, “an existential battle with an aggressive and arrogant West” and that this is the most dangerous decade since WWII.
- The deputy chair of Putin’s security council, Dmitry Medvedev, told a conference in Moscow that “a new world war was not inevitable but the risks of a nuclear confrontation were growing.”
- There are a number of “black swan” type events that are increasingly becoming more believable. While these would likely lead to declines in the broader stock market, they could result in support for increased defense sector spending. These include a geopolitical event between China and Taiwan, Russia using a nuclear device inside Ukraine, Russia invading a Baltic nation, Israel attacking Iranian nuclear program facilities, or China openly supplying weapons to Russia. North Korea and Iran remain wildcards.
- According to *Politico*, China is quietly taking sides—Russia has imported \$100M+ in drones, 30x more than Beijing sold to Ukraine. Also, Chinese exports of ceramics used for body armor is up 69% to \$225M, while sales to Ukraine have declined by 61%.

Fact 2: Government spending on security is rising

- Global Spending: According to the Swedish research institute, SIPRI, total global defense spending rose 3.7% in 2022 to **\$2.24 Trillion** (a historic high). European spending to bolster defense was up 13%. Ukraine’s was up 640% (not including aid provided by the West). Russia’s budget was up 9.2% (although they stated this is highly uncertain given the increasing opaqueness of financial authorities there.)

- US Spending: The FY2024 budget for the Pentagon proposed by the Biden Administration totals \$842 Billion, the largest-ever request. It includes the greatest-ever requests for procurement of weapons, R&D, and space-related activities. The amount is \$25 Billion more than what Congress appropriated in 2023.

- US International Sales: **\$153.7B**—Direct commercial sales tracked by the Defense Security Cooperation Agency increased 49% in 2022 as Foreign Military Sales reached \$51.9B. This was driven by weapons sales for the war in Ukraine and demand from European allies.

Fact 3: The commercial aerospace business is booming

Per Boeing’s “2023 Commercial Market Outlook”

- Market needs 42,565 new jets by 2042. The value of this is **\$8 Trillion** (up 1,400 aircraft from 2022).
- Commercial services surrounding the sale of new aircraft including spare parts, digital solutions, and training: **\$3.8 Trillion**.
- Only 6,000 of the current global fleet of 24,500 planes will be active in 2042.

This year’s Paris Air Show produced strong sales and lots of data:

- Passenger flight traffic reached 97% in April 2023 of pre-pandemic levels. Capacity was at 92%.
- Boeing’s order backlog through May 2023 was 4,192 planes.
- Boeing has a commercial business backlog of **between 6.7 and 11.2 years of production**.

The Wildcard: US Congress

Has there ever been a more unpredictable and divisive Congress than what we have today? I’ll leave that answer to historians. The defense budget typically receives bipartisan support—yet even the ability to issue promotions has been hampered in the current session due to ideology. If the approval to the defense budget (or to the FY2024 federal budget) is delayed, then near-term shocks to the stock market as a whole, and defense stocks in particular, would undoubtedly be felt—and present a buying opportunity for investors.

Debt Ceiling Agreement: Caps FY2024 national defense spending at \$842B with an additional \$44B for non-Pentagon defense spending—a total of \$886B. The deal increases the DoD budget by 1% for FY2025 (\$895B).

Commentary (continued from page 2)

- Although the defense funding bill cleared the Senate Arms Committee and House Appropriations Committee in June, it is being held up to debate several non-funding, socially controversial measures.
- A deal is never really a deal. Before the ink was dry on the debt ceiling agreement, politicians were already discussing creating supplemental spending bills as a means to increase spending on defense and security.

Conclusion

In 2022, in reaction to the Russian invasion of Ukraine, defense stocks outperformed the market by nearly 30%. In 2023, the sector continues to see stock market gains approaching double digit returns—yet total revenues for the 100 largest firms in the *Defense News Top 100* remained relatively flat \$534 billion. This apparent contradiction actually bodes well for the coming quarters and the next few years.

During much of 2022 and early 2023, many of the large prime systems manufacturers cited supply chain disruptions that led to an inability to increase their production of weapons systems and equipment to support those needed to supply Ukraine’s war effort as well as restock national assets. Rebuilding munitions stockpiles to ensure their availability in a future conflict (or as a deterrent to a future conflict with an adversary such as China) will drive defense spending over the coming quarters and years.

While production delays have reduced anticipated deliveries in the near-term and, thus, prevented firms recording revenues, a return to normal operations as these issues are overcome should lead to revenue boosts as more orders are fulfilled. **Backlog** at the prime contractors (Lockheed, RTX, Boeing, General Dynamics, and Northrop Grumman) **exceeds 3/4 trillion dollars.**

The SPADE Defense Index is Up But Underperforming the Market in 2023...Why?

It seems counterintuitive that defense stocks would underperform the broader stock market considering all the increased military spending, but a look inside how those returns are happening tells a different story.

Mega-cap technology stocks are once again in the driver’s seat. In the first half of 2023, IT stocks accounted for 62% of the S&P500’s advance, up 42.1%—led by a 190% jump in Nvidia shares and 50% gain for Apple.

Still, there are several factors that held back the defense sector from even higher stock performance gains during 1H23.

- 2022 saw large inflows into defense ETFs and substantial gains in defense stocks. For example, the Invesco Aerospace and Defense ETF (NYSE: PPA) saw shares held by investors grow from 9M to 23M over the past year, leading to a tripling of its assets under management. Considering the increase in portfolio weight, a pause from investors is not unexpected.
- Anticipated development contracts were delayed as DoD contracting personnel shifted their attention toward addressing wartime needs.
- Military contracts to support the war in Ukraine and refill the arsenals of the US and its allies is taxing the capabilities of procurement professionals inside DoD.
- Supply chain issues for key components, such as rocket motors, have hindered efforts to produce more arms. This has impacted firms, such as Lockheed Martin and Raytheon, to supply items like the Guided Multiple Launch Rocket System (GMLRS) and the Javelin missile.
- Boosting production for US arms, has forced companies to buy machinery from overseas so that they can manufacture artillery shells and fulfill contracts.

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PPA Dividend History

YTD	\$0.108	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

Commentary (continued from page 3)

- Workforce constraints and the ability to find skilled workers are limiting firms as they attempt to expand/handle a surge in business.
- In 1Q23, a fixable manufacturing issue for commercial aircraft impacted the short-term share prices of Boeing and its supplier base. This has been resolved.

Yet despite these challenges, the value of the benchmark SPADE Defense Index rose by nearly 10% YTD.

How will Russia/Ukraine end?

It is a question on many minds. We see a back-and-forth battle that lasts at least through 2023. At a guess, the conflict is likely to end in one of four ways (in no particular order).

(1) Russia figures out how to properly deploy its quantity of equipment and personnel advantages to overwhelm Ukraine (something that to date they have failed to do).

(2) The war escalates either by the entrance of a new party, such as China, or direct engagement by NATO.

(3) The Wagner Group's attempt (if we can call it that) to overthrow Vladimir Putin was short-lived but the situation remains complex and unpredictable. Putin has obviously been weakened and it remains possible that a group of oligarchs and/or the military, fed up with the status quo and continued failures, engineers a new coup.

(4) An extended conflict, similar to that which happened in Crimea or Afghanistan, leads to a stalemate.

Conclusion

The three major sources of revenue for companies held by the SPADE Defense Index—(1) defense products and services for sale to the US market and abroad, (2) commercial aircraft production and support, and (3) adjacent markets such as space, government IT, and security—are all experiencing growth.

After a year in which the Index outperformed the broader US stock market by 28%, a slowing and reversion to the mean, is not unusual. Barring radical action in the political environment (such as a failure to approve a budget) or an unforeseen black swan event, we expect that in the coming quarters (through 2024 and perhaps 2025), continued growth in defense spending around the globe will benefit the top lines of companies involved with aerospace and defense (and the benchmark SPADE Defense Index).

The performance of defense sector stocks is driven as a reaction to our perception of fear and stability. The activity in Ukraine is but one of a number of global and local threats from which companies operating in the sector benefit. [The conclusion of hostilities in Ukraine is not the end of the defense and aerospace upgrade cycle.](#) Western nations will shift their attention toward restocking and re-evaluating their needs for the future, and how to counteract the enemies and threats that remain. This will translate into hundreds of billions of dollars in new contracts in forthcoming years.

Mergers, Acquisitions, and Spinoffs on the Horizon

- Heico bought Wencor Group (private) in May 2023 for \$2 billion and will add \$754 million in revenue to the firm. It is expected to close in 4Q23. Regulatory opposition is not expected.
- Mercury Computer (MRCY) announced it is pursuing a sale of the firm
- Ball (BALL) announced it is seeking a buyer for its Aerospace division with a target price of around \$5 billion.
- Jacobs (J) announced plans to spinoff its defense operations by 4Q2024.

By the Numbers

\$8T Boeing forecast of the size of the commercial jet manufacturing market for 2023-2042.

\$3.8T Boeing forecast for commercial services surrounding sale of new aircraft including spare parts, digital solutions, and training.

\$2.24T Total global spending on defense in 2022.

\$842B FY2024 proposed budget for Department of Defense by the Biden Administration.

\$153.7B Direct commercial sales tracked by the Defense Security Cooperation Agency increased 49% in 2022 as Foreign Military Sales reached \$51.9B. This was driven by weapons sales for the war in Ukraine and demand from European allies.

\$110.6B Estimated size of the military fixed wing aircraft market by 2033 according to a report by GlobalData.

\$70B List price as Air India finalized orders for 470 planes from Airbus (250) and Boeing (220) at the Paris Air Show.

\$20B Amount DoD increased its contract vehicle for technology R&D at its DoD Information Analysis Center (now \$48B to 25 companies, including Booz Allen, Leidos, and SAIC).

\$19B Amount of arms sale plan by US House of Representatives to support Taiwan.

\$18B Amount RTX will receive from France's Safran for a unit that manufactures flight controls for aircraft and missiles.

\$15B State Department approved sale of Integrated Air and Missile Defense Battle Command System and related equipment to Poland. RTX and Lockheed Martin are the prime contractors for the system.

\$8.71B Germany announced plans to purchase 60 Chinook helicopters from Boeing.

\$7.2B US Army to the Javelin Joint Venture to ensure availability of the missiles through 2026.

\$7.1B Textron's Bell division delivered two virtual cockpit prototypes for the US Army's Future Long-Range Assault Aircraft program as part of its contract for its V-280 Valor. The tiltrotor is expected to fly in the Midas.

\$5.9B State Department approved a sale of 16 Boeing P-8A multi-mission patrol and reconnaissance aircraft along with 111 items of related equipment to Canada.

\$2.4B Boeing and Northrop Grumman both passed design review for the \$2.4B Protected Tactical Satcom program.

\$1.7B General Dynamics Information Technology to provide support services to US Army Aviation Center of Excellence under a 5-year contract.

\$1.7B US Naval Air Systems Command contract modification to Boeing for the provision of 400 RGM-84L-4 Harpoon Block II missile and associated equipment.

\$1.6B General Dynamics selected by the US Army for the next phase of its XM30 mechanized infantry combat vehicle program to replace the Bradley fighting vehicle.

\$1.3B Ingalls Shipbuilding (NYSE: HII) for a US Navy contract modification for construction of the San Antonio class amphibious transport dock.

\$1.15B RTX from the US Air Force and allies for AIM-120 D-3 & C-8 Advanced Medium Range Air-to-Air Missiles.

\$1.07B General Dynamics Electric Boat from the US Navy for advanced procurement for two new Virginia-class attack submarines.

\$919M Booz Allen to support DoD R&D for soldier-as-a-system concept.

\$750M L3Harris from the US Marine Corp for Falcon IV multi-channel handheld and vehicular radio systems under a 10-year contract.

\$584M L3 Harris from the US Air Force for software development services for the Advanced Integrated Defensive Electronics Warfare Suite.

2023 Leaders

1	Palantir	84.42%
2	DRS	33.69%
3	V2X	24.85%
4	Elbit Systems	22.77%
5	Woodward	22.12%
6	ViaSat	21.93%
7	Transdigm	21.32%
8	Booz Allen	20.40%
9	KBR	18.18%
10	Eaton	17.37%

2023 Laggards

1	Mercury Computer	[3.89%]
2	Comtech	[4.25%]
3	Ducommun	[5.72%]
4	Planet Labs	[8.10%]
5	Spirit Aerosystems	[13.22%]
6	Axon	[15.46%]
7	Teledyne	[18.07%]
8	General Dynamics	[20.36%]
9	Textron	[26.76%]
10	Leidos	[32.34%]

Morningstar Says:

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

2023 YTD Results

1	Palantir	138.79%
2	OSI Systems	48.18%
3	Allegheny Tech.	48.12%
4	Transdigm	42.01%
5	Kratos	38.95%
6	DRS	35.68%
7	Parker Hannifan	34.03%
8	GE	31.10%
9	ViaSat	30.36%
10	Hexcel	29.18%
11	AIR	28.64%
12	Eaton	28.13%
13	Elbit Systems	27.38%
14	Howmet	25.75%
15	Moog	23.55%
16	BWX Technologies	23.23%
17	KBR	23.22%
18	Woodward	23.08%
19	Iridium	20.86%
20	V2X	20.10%
21	Aerovironment	19.40%
22	Axon	17.59%
23	Triumph Group	17.59%
24	CAE	15.72%
25	Heico	15.17%
26	Ball	13.82%
27	CACI	13.39%

28	Boeing	10.85%
29	Curtiss Wright	9.98%
30	Kaman	9.10%
31	Booz Allen	6.77%
32	Parsons	4.09%
33	Barnes	3.28%
34	Teledyne	2.80%
35	SAIC	1.40%
36	Jacobs	[0.98%]
37	Huntington Ingalls	[1.34%]
38	Spirit Aerosystems	[1.39%]
39	Oshkosh	[1.81%]
40	Aerojet Rocketdyne	[1.90%]
41	Keys...	[2.12%]
42	RTX	[2.93%]
43	Honeywell	[3.17%]
44	Textron	[4.48%]
45	Lockheed Martin	[5.37%]
46	L3 Harris	[5.97%]
47	TTM	[7.82%]
48	Ducommun	[12.79%]
49	General Dynamics	[13.28%]
50	Leidos	[15.89%]
51	Northrop Grumman	[16.46%]
52	Mercury Computer	[22.69%]
53	Comtech	[24.71%]
54	Planet Labs	[25.98%]

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

Exchange / Ticker Symbol:	NYSE / PPA
Assets (6/30/23)	\$ 1.94B
Closing Price (6/30/23)	\$84.47
Dividend Yield*	1.17%
2Q23 Volume**	7,066,400
Turnover*	26%
Morningstar Rating	**** (4-Star)

source: * Morningstar & ** Yahoo Finance 6/30/23

Capture Ratio*	3-Yr	5-Yr	10-Yr
Upside	86	96	105
Downside	72	92	765

Portfolio Price / Earnings*	20.14
Portfolio Price / Book*	2.94
Portfolio Price / Sales*	1.62
Beta (3-year) *	0.93
Alpha (3-years)*	5.80
R-squared (3 years)*	55.10
Long-Term Earnings*	8.93%
Historical Earnings*	1.59%
Sales Growth*	0.61%
Cash Flow Growth*	-6.52%
Book Value Growth*	6.94%

source: * Morningstar 6/30/23

**Total Return
(Annual %)**

	SPADE Defense Index
1-Yr	21.30%
3-Yr	15.92%
5-Yr	9.98%
10-Yr	14.23%
15-Yr	11.86%
Inception	11.42%

Through 6/30/2023
(Morningstar)

Index Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
YTD	7.78%	15.91%	[813]
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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US Security Assistance to Ukraine (July 2023)

The United States has provided \$42.6 billion in security assistance since Russia invaded Ukraine.

Stinger Anti-Aircraft Systems	2,000
Javelin Anti-Armor Systems	10,000+
Other Anti-Armor Systems	70,000+
155mm Howitzers	198
105mm Howitzers	72
Tactical Vehicles to Tow Weapons	300+
Tactical Vehicles to Recover Equipment	71
Ammunitions Support Vehicles	30
High Mobility Artillery Rocket Systems (HIMARS) and ammo	38
120mm Mortar systems	47
82mm Mortar systems	10
81mm Mortar systems	67
60mm Mortar systems	58
Mortar Rounds	345,000
Command Post Vehicles	10
Patriot Air Defense Battery and Munitions	1
Tube-launched optically tracked Wire-guided TOW missiles	4,000+
Avenger Air Defense Systems	20

Mine clearing equipment and systems	No details
Night vision devices, surveillance systems, thermal imaging optics, laser rangefinders	thousands
Armored Utility Trucks	6
Phoenix Ghost Tactical UAS	No qty listed
Puma Unmanned Aerial Systems	No qty listed
Scan Eagle UAS	No qty listed
Switchblade Tactical Unmanned Aerial Systems	No qty listed
High Mobility Multipurpose Wheeled Vehicles	2,000+
Light Tactical Vehicles	100+
Stryker Armored Personnel Carrier	157
M113 Armored Personnel Carrier	300
M117 Armored Security Vehicles	250
MRAPS	500+
Generators	No qty listed
Counter Artillery and Counter Mortar Radars	70
Multi-Mission Radars	20
Harpoon Coastal Defense Systems	2
Coastal and River Patrol Boats	62

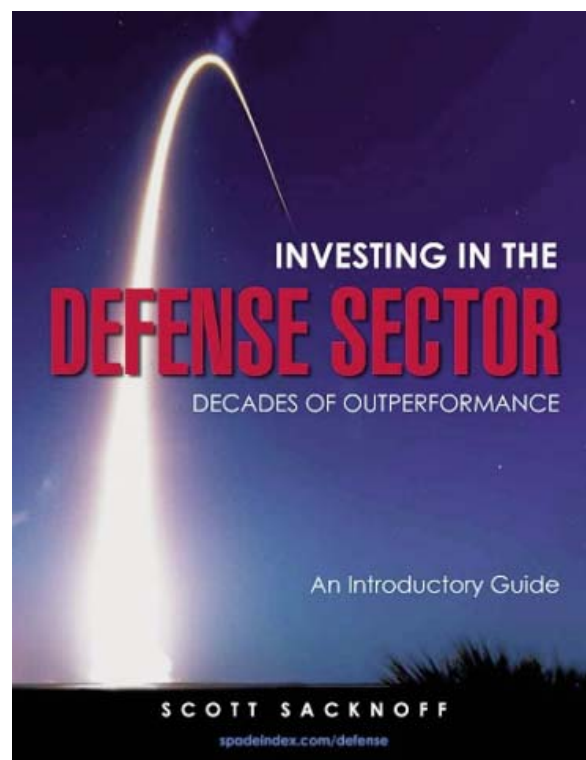
Mi-17 Helicopters	20
Abrams Tanks	31
T-72B Tanks	45
Bradley Infantry Fighting Vehicles	186
155mm Artillery rounds	2 M +
Precision guided 155mm artillery rounds	7,000+
125mm Tank ammunition rounds	100,000
155mm Rounds of remote Anti-armor mine systems	14,000
203mm Artillery Rounds	10,000
152mm Artillery Rounds	50,000+
122mm GRAD Rockets	60,000
105mm Artillery Rounds	500,000+
122mm Artillery Rounds	40,000
130mm Artillery Rounds	~40,000
25mm Ammunition Rounds	1.8 M
Zuni Aircraft Rockets	6,000
Gender launchers and small arms	35,000+
Rounds of small arms ammunitions and grenades	300M +
Sets of body armor and helmets	100,000+

c-UAS mobile laser guided rocket	10
Anti-Aircraft Guns and Ammo	No qty listed
Bradley Fire Support Team	4
Logistics Support Vehicles	8
Heavy Fuel Tankers	89
Unmanned Coastal Defense Vehicles	No qty listed
Port and Harbor Security Equipment	No details
M18A1 Claymore Anti-Personnel Munitions	No qty listed
High-speed anti-radiation missiles	No qty listed
Precision Aerial Munitions	No qty listed
Hydra-70 Aircraft Rocket	7,000+
Munitions for Unmanned Aerial Systems	No qty listed
Trucks/Trailers to Transport Heavy Equipment	68/124
Fuel Trailers	105
UAS: CyberLux K8, Altius-600, Jump-20	No qty listed
Armored Medical Treatment Vehicles	200
Satellite Communications Terminals and Systems	No qty listed
Commercial Satellite Imagery	No qty listed
Satellite Communications Antennas	4
National Advanced Surface to Air Missile Systems	8
RIM-7 Missiles for Air Defense	No qty listed
C-UAS Gun Trucks and Ammo	9

End of June 2023		100.0%					Market	Forward	Price/	Price/	PEG	
							Cap	P/E	Sales	Book	5 yr	Div Yld
		Percent	31-Mar-23	30-Jun-23	YTD	QTD	intraday	(ttm)	ttm	mrq	expected	forward %
Company	Ticker	30-Jun-23	Price	Price	% Ch	% Ch						
AAR Corp	AIR	0.51%	54.55	57.76	28.64%	5.88%		2.01	17.24	1.05	1.85	
Aerofjet Rocketdyne	AJRD	1.08%	56.00	54.87	-1.90%	-2.02%		4.43	24.72	1.93	7.84	2.25
ATI	ATI	0.97%	39.46	44.23	48.12%	12.09%		5.69	15.74	1.41	5.19	0.12
AeroVironment	AVAV	0.65%	91.66	102.28	19.40%	11.59%		2.68	35.64	---	4.13	2.33
AXON International Inc.	AXON	3.32%	224.85	195.12	17.59%	-13.22%		14.42	52.74	11.29	10.27	1.81
Barnes Corp	B	0.19%	40.28	42.19	3.28%	4.74%		2.135	16.55	1.66	1.55	1.89
Boeing Co	BA	6.53%	212.43	211.16	10.85%	-0.60%		127.03	40.14	1.80	8.19	1.53
Booz Allen	BAH	2.54%	92.69	111.60	6.77%	20.40%		14.62	20.29	1.58	14.81	2.28
Ball Corp	BALL	0.68%	55.11	58.21	13.82%	5.63%		18.31	16.63	1.21	5.03	6.06
BWX Technologies	BWXT	1.34%	63.04	71.57	23.23%	13.53%		6.55	22.37	2.88	8.30	8.55
CACI Intl	CACI	1.47%	296.28	340.84	13.39%	15.04%		7.77	16.88	1.17	2.51	2.74
CAE	CAE	1.72%	22.63	22.38	15.72%	-1.10%		7.13	19.46	1.70	1.58	2.62
Comtech	CMTL	0.06%	12.48	9.14	-24.71%	-26.76%		0.25	11.15	0.48	0.58	0.98
Curtiss Wright	CW	1.20%	176.26	183.66	9.98%	4.20%		7.04	19.07	2.68	3.43	0.15
Ducommun	DCO	0.15%	54.71	43.57	-12.79%	-20.36%		0.63	13.24	0.87	1.01	1.10
Leonardo DRS	DRS	1.05%	12.97	17.34	35.68%	33.69%		4.53	21.41	1.71	2.11	---
Elbit Systems	ESLT	2.35%	170.21	208.96	27.38%	22.77%		9.32	26.52	1.68	3.33	2.69
Eaton	ETN	2.35%	171.34	201.1	28.13%	17.37%		80.16	21.55	3.75	4.59	2.25
General Dynamics	GD	4.58%	228.21	215.15	-13.28%	-5.72%		59.03	14.55	1.48	3.09	1.55
General Electric	GE	5.29%	95.60	109.85	31.10%	14.91%		119.77	27.46	1.53	3.78	1.98
Heico	HEI	2.01%	171.04	176.94	15.17%	3.45%		21.31	52.04	8.57	8.60	4.62
Huntington Ingalls	HII	2.20%	207.02	227.60	-1.34%	9.94%		9.08	13.76	0.84	2.55	2.14
Honeywell Intl	HON	4.71%	191.12	207.50	-3.17%	8.57%		138.13	20.54	3.84	8.16	2.86
Howmet	HWM	3.27%	42.37	49.56	25.75%	16.97%		20.48	23.71	3.49	5.51	1.71
Hexcel	HXL	1.43%	68.25	76.02	29.18%	11.38%		6.41	29.02	3.90	3.96	1.12
Iridium	IRDM	0.54%	61.93	62.12	20.86%	0.31%		7.82	151.51	10.32	7.21	2.94
Jacobs Engineering	J	1.08%	117.51	118.89	-0.98%	1.17%		15.08	14.17	0.97	2.36	1.59
Kaman	KAMN	0.13%	22.86	24.33	9.10%	6.43%		0.69	26.74	0.95	1.00	5.35
KBR	KBR	1.79%	55.05	65.06	23.22%	18.18%		8.83	17.92	1.35	5.38	1.28
Keysight Tech.	KEYS	0.84%	161.48	167.45	-2.12%	3.70%		29.87	19.52	5.34	6.34	2.38
Kratos Defense & Security	KTOS	0.46%	13.48	14.34	38.95%	6.38%		1.83	28.68	1.96	1.95	20.32
Leidos	LDOS	2.09%	92.06	88.48	-15.89%	-3.89%		12.14	12.04	0.83	2.75	2.04
L3 Harris	LHX	4.44%	196.24	195.77	-5.97%	-0.24%		37.09	14.75	2.13	2.03	13.96
Lockheed Martin	LMT	6.31%	472.73	460.38	-5.37%	-2.61%		116.59	16.39	1.76	12.12	1.55
Moog Inc.	MOGA	0.51%	100.75	108.43	23.55%	7.62%		3.43	16.60	1.09	2.19	2.63
Mercury Computer Sys	MRCY	0.51%	51.12	34.59	-22.69%	-32.34%		2.01	18.50	1.99	1.26	5.76
Northrop Grumman	NOC	6.33%	461.72	455.80	-16.46%	-1.28%		69.22	18.59	1.89	4.58	10.51
OSI Systems	OSIS	0.31%	102.36	117.83	48.18%	15.11%		1.97	16.57	1.64	2.96	2.43
Oshkosh Truck	OSK	0.40%	83.18	86.59	-1.81%	4.10%		5.66	11.99	0.66	1.74	0.31
Parker Hannifan	PH	2.99%	336.11	390.04	34.03%	16.05%		49.29	17.59	2.76	5.12	1.70
Planet Labs	PL	0.09%	3.93	3.22	-25.98%	-18.07%		0.89	16.95	4.36	1.52	0.33
Palantir	PLTR	0.86%	8.45	15.33	138.79%	81.42%		32.48	61.32	16.36	11.92	0.99
Parsons	PSN	0.50%	44.74	48.14	4.09%	7.60%		5.05	19.98	1.14	2.44	2.12
Raytheon Technologies	RTX	6.42%	97.93	97.96	-2.93%	0.03%		143.13	17.01	2.09	1.97	1.80
SAIC	SAIC	1.16%	107.46	112.48	1.40%	4.67%		6.04	14.74	0.78	3.59	3.57
Spirit Aerosystems	SPR	0.78%	34.53	29.19	-1.39%	-15.46%		3.07	19.72	0.58	6.85	0.23
Transdigm	TDG	3.70%	737.05	894.17	42.01%	21.32%		49.12	30.59	8.33	16.92	1.47
Teledyne Technologies	TDY	1.32%	447.36	411.11	2.80%	-8.10%		19.34	19.87	3.50	2.31	3.55
Triumph Group	TGI	0.20%	11.59	12.37	17.59%	6.73%		0.81	16.06	0.59	1.02	2.27
TTM Technologies	TTMI	0.14%	13.49	13.90	-7.82%	3.04%		1.43	10.86	0.58	0.96	0.75
Textron	TXT	2.52%	70.63	67.63	-4.48%	-4.25%		13.64	11.68	1.06	1.95	0.82
Viasat Inc	VSAT	0.42%	33.84	41.26	30.36%	21.93%		5.09	61.58	1.99	0.83	9.45
V2X	VVX	0.34%	39.72	49.59	20.10%	24.85%		1.54	21.36	0.45	1.57	
Woodward	WWD	1.15%	97.37	118.91	23.08%	22.12%		7.14	27.65	2.76	3.54	1.51
Data Provided by Morningstar, Yahoo Finance/Thomson Reuters (PEG), Morningstar (div)								1339.18				

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