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Initiating coverage

Defence

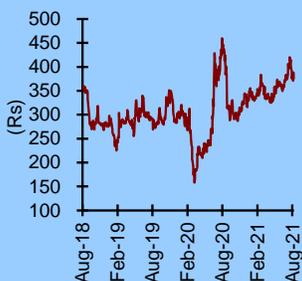
Target price: Rs600

Shareholding pattern

	Dec '20	Mar '21	Jun '21
Promoters	74.9	74.9	74.9
Institutional investors	17.9	17.8	18.3
MFs and others	4.7	6.1	6.9
Banks / FIs	1.3	0.1	0.0
Insurance Cos.	11.8	11.3	11.0
FIs	0.1	0.3	0.4
Others	7.2	7.3	6.8

Source: BSE

Price chart



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INDIA

Bharat Dynamics

BUY

Guided missile systems to drive orderbook and profit growth

Rs375

Bharat Dynamics (BDL) is a leading Defence PSU in India manufacturing guided missile systems. It has a product portfolio consisting of Surface-to-Air Missiles (SAMs), Anti-Tank Guided Missiles (ATGMs), underwater weapons, launchers, counter-measures, and test equipment. BDL also undertakes life-extension as well as refurbishment work on missile systems. Currently, it is the key domestic supplier of SAMs and ATGMs to the Indian Armed Forces. While July, '21 orderbook stands at Rs87bn (2.6x book to bill), management has reiterated the possibility of orderbook expanding to Rs230bn over next two years. Large part of the accretion is expected from *Akash* 3rd and 4th squadrons (Indian Army) and '*Astra* beyond visual range' (air-to-air missiles). Also, we believe BDL has the potential to benefit from India's focus on defence exports. We initiate coverage on BDL with a BUY rating and DCF-based target price of Rs600/share (implying P/E of 15x FY23E). Key risks include delay in execution, higher LDs accruing because of the same, lower than expected orderbook accretion, and higher material costs.

- ▶ **Orderbook has potential to reach Rs230bn in next two years.** We believe this is the single biggest investment thesis for BDL and can potentially increase the book to bill ratio 5x by FY23E. The biggest component of the orderbook as expected are **Akash 3rd and 4th regiment orders** for the Indian Army and '**Astra** beyond visual range air-to-air missiles' (both these projects combined will lead to accrual of Rs130bn in order inflow in the medium term). The expected execution on these missiles is also 2-3 years, which, we believe, allows for a much more constructive stance on possible medium-term revenues. **VSHORAD** and **Smart anti-airfield weapon** orders are expected in FY22E. ATGM orders will also be spread across FY22E and FY23E. Besides, there are many more products jointly developed with DRDO (e.g. *Akash* NG, MPATGM, *Nag* and *Helina* ATGMs), where user trials have been completed (or are on the verge of completion) and orders are expected over the next two years.
- ▶ **BDL can play leading role in achieving Indian defence export target of Rs350bn by CY25.** *Akash* weapon system has been cleared for exports by the ministry of defence (MoD). **Underwater weapon exports to friendly countries continue.** Third-gen anti-air guided weapon system, and heavyweight torpedo are among the potentially exportable products. The extent of MoUs with the global players – including Roxel (France) for establishment of propulsion systems, MBDA (France) for domestic production of Mistral and ASRAAM missiles, Thales for Starstreak MANPADS, AlmazAntey (Russia) for spares manufacturing – suggests increasing indigenous production with more and more export opportunities coming BDL's way in the near future. IAI Israel has placed an order with BDL for integration of missiles.

Market Cap	Rs68.8bn/US\$924mn	Year to Mar	FY20	FY21	FY22E	FY23E
Reuters/Bloomberg	BDL.BO / BDL IN	Revenue (Rs mn)	31,049	19,138	32,000	40,000
Shares Outstanding (mn)	183.3	EBITDA (Rs mn)	7,555	3,447	7,539	9,886
52-week Range (Rs)	460/287	Net Income (Rs mn)	5,349	2,578	5,571	7,279
Free Float (%)	24.1	EPS (Rs)	29.2	14.1	30.4	39.7
FII (%)	0.4	P/E (x)	13.7	28.4	13.2	10.1
Daily Volume (US\$'000)	1,938	CEPS (Rs)	34.4	19.2	36.1	45.8
Absolute Return 3m (%)	7.2	EV/E (x)	8.8	16.7	7.4	4.4
Absolute Return 12m (%)	(11.3)	Dividend Yield	2.2	2.2	2.8	2.8
Sensex Return 3m (%)	12.3	RoCE (%)	17.3	6.2	13.7	14.9
Sensex Return 12m (%)	46.3	RoE (%)	20.5	9.6	16.5	17.2

Please refer to important disclosures at the end of this report

- ▶ **Progressive capacity creation underway as visibility on missile orderbook is strong.** BDL has established production facilities for manufacture of MPATGMs at its Bhanur unit – this will cater to the largest possible orderflow of MPAD/MPAT over next few years (including export orders). BDL is also in the process of setting up two additional manufacturing facilities at Ibrahimpatnam (near Hyderabad) and Amravati in Maharashtra, which will be used to manufacture SAMs and Very Short-Range Air Defence Missiles (VSHORADM), respectively.

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About the company

Bharat Dynamics (BDL) was incorporated in 1970 under India's ministry of defence (MoD). It is engaged in the production of missiles, Anti-Tank Guided Missiles (ATGMs), underwater weapons, launchers, countermeasures and test equipment. BDL works with DRDO and foreign Original Equipment Manufacturers (OEMs) for manufacture and supply of various missiles and allied equipment to the Indian Armed Forces. Further, the company offers product lifecycle support and refurbishment / life-extension of vintage missiles. It also extends technical support to vendors by way of inter alia providing test facilities.

BDL has four manufacturing units; three are in Telangana (Hyderabad, Bhanur and Ibrahimpatnam), and one in Andhra Pradesh (Visakhapatnam). Company has been constantly upgrading its manufacturing technologies and processes to state-of-the-art sophistication including industry 4.0, robotics-operated workshops, latest surface-mounted device assembly lines. It has always maintained highest quality standards in its products by adopting to best QA practices like AS 9100, zero defect, etc. This has resulted in reduction in production costs, benchmarking of productivity norms, modernisation of management system, and reduced dependence on imported technology.

Table 1: Portfolio of BDL's major products

Surface to Air Missile	Akash Missile System An all-weather air defence weapon system with indigenisation level of 96%. The missile uses a high explosive, pre-fragmented warhead that can engage multiple threats simultaneously and capability of intercepting multiple targets in multiple directions at a maximum height of 18km.
	Medium Range SAM (MRSAM) / Long Range SAM (LRSAM) This is under Transfer of Technology (ToT) from Israeli Aerospace Industries, Israel, to DRDO. It is a high-response, quick-reaction vertical-launch supersonic missile, designed to neutralise enemy aerial threats – missiles, aircrafts, guided bombs and helicopters.
Air to Air Missiles	Astra Weapon System Astra is an indigenously developed 'Air-to-Air Beyond Visual Range' missile comprising of Astra missile and launcher.
Air to Surface weapons	Smart Anti-Air Field Weapon (SAAW) SAAW is a long-range, standoff, precision air-to-surface weapon.
	Helina (Dhruvastra) Helina is an abbreviation for Helicopter-launched NAG and is an air-to-surface missile system. Helina is launched from Advanced Light Helicopter (ALH). It is equipped with high-resolution Imaging Infrared Seeker (IIR) capable of automatic target detection and tracking in adverse weather conditions.
Underwater Weapons	Heavy Weight Torpedo This is one of the most advanced automatic guidance systems. The weapon system uses its own intelligence in tracking the target with indigenisation level at 86.8%.
	Light Weight Torpedo This is developed by DRDO. It can be launched from a ship or a helicopter and used for anti-submarine warfare with indigenisation level of 82.9%.

Table 1: Portfolio of BDL's major products (...continued)

Anti-Tank Guided Missile	<p>Milan-2T This is a second-generation wire-guided with tandem warhead to destroy tanks; it can target both moving and stationary targets. It has come under ToT from MBDA, France, with indigenisation level of 71%.</p>
	<p>Konkurs-M This is second-generation wire-guided with tandem warhead designed to destroy moving and stationary armoured targets. It can be launched from vehicles and ground launchers. ToT from KBP Tula, Russia, with indigenisation level of 96%.</p>
	<p>Invar (3 UBK 20) This is second-generation plus mechanised infantry weapon that can be fired from the gun barrel of a T-90 tank. It is used to destroy armoured vehicles. ToT from Rosoboronexport (ROE), Russia, with indigenisation level of 78.6%.</p>
	<p>Man Portable Anti-Tank Guided Missile (MPATGM) This is for Infantry and Parachute (Special Forces) of the Indian Army. It is 'soft' launched from a canister using an ejection motor. It uses a state-of-the-art IIR seeker for homing on to the target</p>
Counter-Measure Device	<p>Counter Measures Dispensing System (CMDS) This is an in-house developed product with state-of-the-art flare and chaff dispensing system providing self-protection to the aircraft against missiles. It can be activated by the pilot or the radar warning receiver of the aircraft</p>
	<p>Anti-Torpedo System It is meant to counter the threat posed to any submarine by any active and/or passive homing torpedo.</p>
	<p>Submarine Fired Decoy (SFD) The SFD acts as preferred target in the presence of an own submarine to a passive or active homing torpedo with zero response time for launching.</p>

Source: Company data, I-Sec research

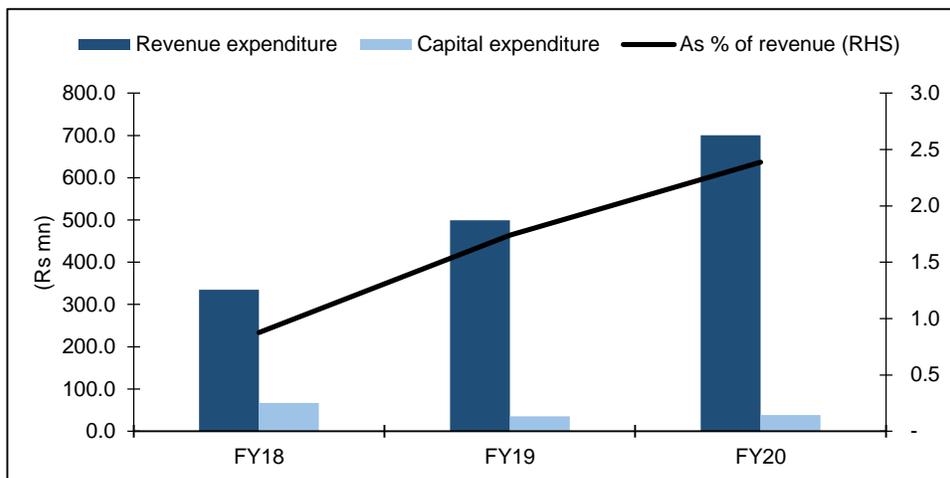
Business strategy – the key defence OEM for projectile manufacturing in India

Continues to invest in infrastructure. Bharat Dynamics’ (BDL) continuous investment in infrastructure in terms of its upcoming manufacturing facilities at Ibrahimpatnam and Amravati will enable the company to cater to the growing demand from customers in our view. The Ibrahimpatnam and Amravati manufacturing facilities shall be utilised to manufacture SAMs (including a new generation) and VSHORADMs respectively. BDL also intends to automate its production systems at its manufacturing facility in Hyderabad to increase the production of SAMs. Company is also in the process of establishing a test fire range in Rachakonda, Telangana, which, according to the company, will result in operational advantages and cost efficiencies. **Seeker facility will be ready by next year, which will replace purchases from outside. In addition, BDL is putting up a warhead facility in the Bhanur unit.**

Currently, BDL has four manufacturing units, of which three are located in Telangana (Hyderabad, Bhanur and Ibrahimpatnam) and one in Andhra Pradesh (Visakhapatnam). As part of its expansion plan, the company is setting up a unit at Amravati in Maharashtra to cater to the growing demands of the Armed Forces.

Focus on R&D. BDL’s spend on R&D has increased in the past years it position it to: 1) provide novel and better products to customers, 2) carry out process improvements for productivity and efficiency, and 3) counter the recent changes in government policies allowing private sector participation in defence contracts and increased FDI limit under the automatic route (which provides significant competition to BDL). In FY21, R&D facilities such as telemetry ground station, hand-held radio frequency signal generator, humidity controlled cabinet, and frequency response analyser have been implemented. BDL is continuously exploring avenues for partnering with major design and manufacturing giants around the world through MoUs/NDAs/LATOTs in pursuit of the latest technologies.

Chart 1: R&D spend by BDL



Source: Company data, I-Sec research

Developing new products. BDL intends to leverage its experience to develop new products such as new-generation SAMs, ATGMs, and heavyweight torpedoes, which, the company believes, will enable further increase in revenues. It is also the joint development partner with the DRDO for next-generation ATGMs and SAMs. The MoD has identified BDL as the production agency and the lead integrator for one of the new-generation SAMs and the nominated agency for third-generation ATGMs. BDL has also entered into several MoUs and non-disclosure agreements with various companies for developing new products and transfer of technologies. We believe development of new products will enable it to diversify its offerings and help it reduce reliance only on its current products. As part of the diversification strategy, the company's design & engineering division is currently focusing on following projects:

- a) *Amogha-III*: BDL has designed and developed *Amogha-III*, a third-generation MPATGM. Field firing test of the missile was conducted in Feb'20 and the missile was launched during *Defexpo-2020*; the first model has been supplied by BDL.
- b) CMD5 Mk-II with AI feature to provide self-protection to aircraft against previously known missile threat at designated way points.
- c) Dispenser for AN-32 aircraft for dispensing flares and chaffs.
- d) Tester for Φ 50mm Dispenser Unit (DU) of Su-30 MKI aircraft.
- e) *Konkurs* Launcher Test Equipment (KLTE) version-II and *Konkurs* Missile Test Equipment (KMTE) version-II.
- f) KLTE version-II is a micro-controller based test equipment to check the serviceability of *Konkurs* ATGM launchers whereas, KMTE version-II is used to check the serviceability of *Konkurs-M* ATGMs. User trials have been conducted successfully at 17 Field Ammunition Depots (FADs), Ludhiana, and 510 Army divisions.

Provide products to international markets

BDL's primary customer is Indian Armed Forces who procure through MoD. Government's contracts to BDL are allocated on nomination basis to supply products to the Armed Forces. Over the years, BDL has also developed the technology, capability and capacity to serve overseas markets. Further, Govt's continuous focus through various policies to increase the exports has boosted the same in past couple of years. As can be seen from, *Table-2*, India's exports have perceptibly increased from ~Rs19.4 in FY15bn to ~Rs91.2bn in FY20; however, exports declined to Rs57bn in FY21 due to the covid pandemic. Further, Govt has introduced various policies and draft regulations to promote exports.

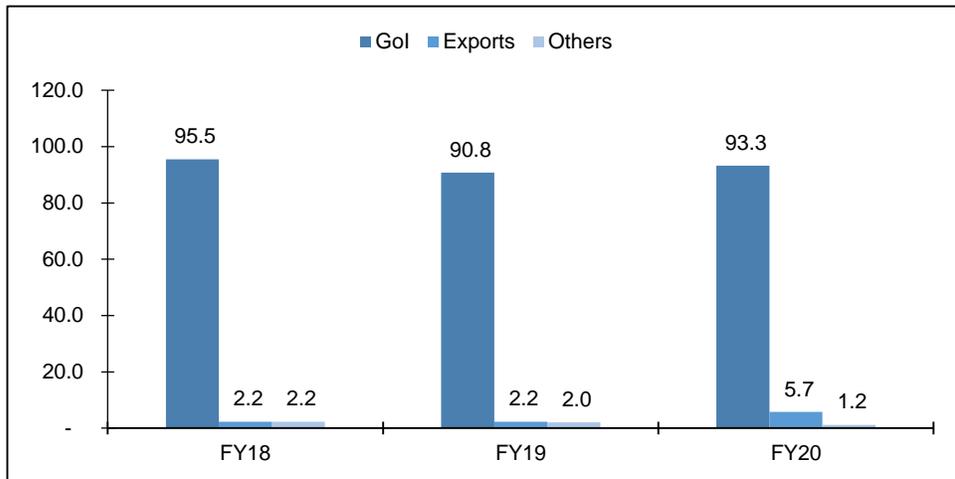
Table 2: Export revenues can increase significantly

(Rs bn)	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Total exports	19.4	20.6	15.2	46.8	107.5	91.2	57.1
No. of authorisations issued	42	241	254	288	668	829	633

Source: Ministry of Defence, I-Sec research

BDL is currently exporting its lightweight torpedoes and intends to offer other products such as *Akash* SAMs, heavyweight torpedoes and countermeasure dispensing systems.

Chart 2: BDL is best placed among DPSUs to increase export revenues meaningfully among peers

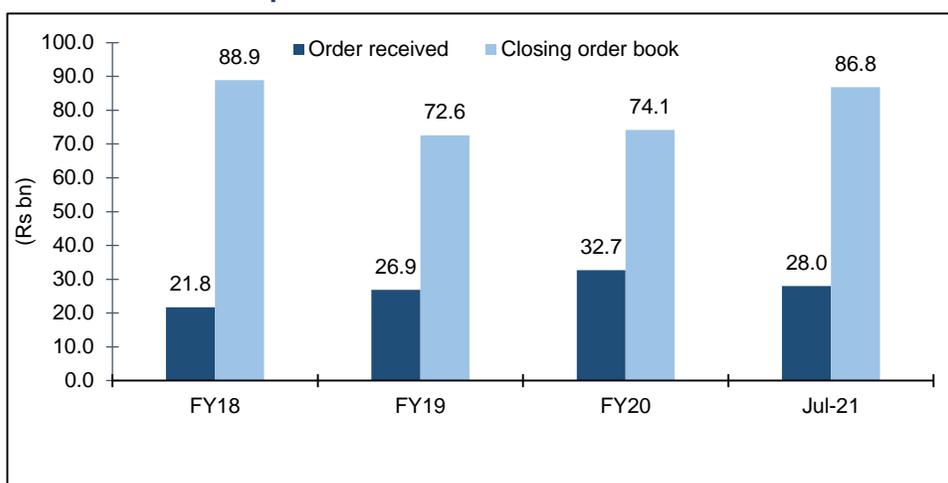


Source: Company data, I-Sec research

Rs230bn on orderbook possible over next two years

Bharat Dynamics' (BDL) orderbook position as at Jul'21 was around Rs87bn comprising of mainly *Akash*, MRSAM, ATGMs, LWT-XP, *Varunastra* and other products. In Jul'21, BDL signed a contract worth Rs5bn with Ministry of Defence (MoD) to manufacture and supply *Akash* missiles to the India Air Force. In FY21, the company got new orders worth Rs28bn which includes ATGM orders of Rs18bn and SAMs of Rs80mn. **By FY22 and FY23, management expects Rs120bn and Rs230bn of orderbook size in the respective years. Major expected orders are *Akash* and *Astra* weapon systems, VSHORADS, 'Smart' anti-airfield weapons, ATGMs. BDL expects orders of *Akash* (Army 3rd and 4th regiments) and *Astra* (IAF) weapon systems soon with an estimated order value at Rs130bn.**

Chart 3: Orderbook position and new orders



Source: Company data

Table 3: Major order items in the BDL orderbook (estimated)

(Rs mn)	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
<i>Konkurs-M</i> ATGMs			16,500	13,200	16,230	10,874
<i>Invar</i> ATGMs			10,500	7,875	3,150	-
<i>Milan 2T</i> ATGMs			7,500	5,250	2,625	-
Other ATGMs	39,390	35,748				
Nag/Helina						
ATGMs	39,390	35,748	34,500	26,325	22,005	10,874
<i>Akash Army</i>	124,180	101,462	67,020	34,850	17,425	871
<i>Akash Air Force</i>	-	-	-	-	-	17,000
MRSAM-Army	-	-	-	19,180	21,180	20,756
MRSAM – IAF	-	-	-	-	-	-
LRSAM – Navy	-	-	-	-	-	-
VSHORADMs	-	-	-	-	-	-
QRSAM	-	-	-	-	-	-
Other SAMs	-	-	-	-	-	-
Surface to air missiles	124,180	101,462	67,020	54,030	38,605	38,628
C-303 Anti-Torpedo Decoy	-	-	1,398	1,914	1,148	459
<i>Varunastra</i>	-	-	-	-	-	12,000
Torpedo – others	-	-	-	-	-	-
Torpedo	-	-	1,398	1,914	1,148	12,459
Astra						
Air-to-air missiles (BVR)						
Others/Exports	-	-	8,783	6,621	10,821	12,157
Orderbook	163,570	137,210	111,700	88,890	72,580	74,118
Change (% YoY)	-13.3%	-16.1%	-18.6%	-20.4%	-18.3%	2.1%

Source: I-Sec research

The shaded rows highlight maximum possibility of order accretion in the medium term

Order inflow opportunities for BDL

Table 4: Order inflow over the next few years

(Rs mn)	FY21	FY22E	FY23E	FY24E	FY25E
Konkurs-M ATGMs	6,329				
Invar ATGMs		5,000	5,000		
Milan 2T ATGMs	11,881				
Nag + Helina				35,000	
ATGMs	18,210	5,000	5,000	35,000	-
Akash Army (NG from FY23E)	1,267		50,000		
Akash Air Force		6,000			
Astra BVR AAM		60,000			
Smart Anti-Airfield Weapon				15,000	
MRSAM-Army					
MRSAM - IAF	6,663			10,000	10,000
LRSAM - Navy					
VSHORAD/Mistral/Star Streak *			100,000		
QRSAM					30,000
Other SAMs					
SAM + AAMs	7,930	66,000	150,000	25,000	40,000
C-303 Anti-Torpedo Decoy					
Varunastra					
Torpedo - others					
Torpedo					
Others/Exports		Highly prospective, yet nothing considered			
Order Inflow	26,140	71,000	155,000	50,000	40,000
Orderbook	81,000	120,000	235,000	243,000	238,900

* Assuming that the requirement for VSHORAD for India was ~Rs270bn, and that it will be a joint development for BDL. Hence Rs100bn has been assumed as the proportional work share for BDL for these missiles.

Source: I-Sec research

Rise in global demand for MANPATS and MANPADS

The use of Man-Portable Anti-Tank Systems (MANPATS) and Man-Portable Air Defence Systems (MANPADS) give a huge advantage to troops by engaging targets without worrying about the accuracy of the strike and weight of the weapon. With the increasing use of sophisticated armoured machinery in conflicts, many countries are increasing the use of MANPATS, and MANPADS. MANPADS are equipped with ultraviolet sensors for radiation detection, infrared sensors for heat detection, and smart control units. Some of the most widely used MANPADS are the **Stinger missile (United States), Strela (Russia), Igla (Russia), Qianwei (China, Pakistan)**, etc. In CY19, Rafael was awarded a contract worth US\$221mn to supply 1,500 Spike Anti-Tank missiles to Germany. According to Rafael, 33 countries have more than 30,000 Spike missiles in their inventories. Ukraine bought 210 Javelin anti-tank missiles along with 37 launchers from the United States in CY18 and signed a contract in CY19 for the second batch of 150 Javelin missiles. With the increasing incidents of drone strikes and air space intrusions, forces around the world are seeking advanced MANPADS systems for air defence. **However, we believe, recent incidents of surface-to-air missiles used against civil aviation aircraft and major military forces supplying MANPADS and MANPATS to rebels and insurgents, have brought into force counter MANPAD programmes and stringent export control norms and regulations. This may hinder the market growth. Any indigenous development opens up a significant export opportunity.**

Asia-Pacific to see enhanced demand

Asia-Pacific has some of the largest importers of arms such as India, China, Pakistan, South Korea, etc. India acquired 210 shoulder-fired Spike anti-tank missiles and 12 launchers for US\$39mn from Rafael Advanced Defense Systems Ltd. in CY19. In CY18, India also signed a US\$1.5bn deal with Russia's KB Mashinostroyeniya for procurement of Igla S shoulder fired surface-to-air weapon system as part of its Very Short Range Air Defence (VSHORAD) programme (which was subsequently cancelled). China is a major developer of shoulder-fired weapons and is investing in the development of smart sensor-based weapons that can differentiate between foe, friend and neutral target to reduce accidental shooting of civilian aircraft and vehicles, which is rising in the region. **China's shoulder-fired MANPAD FN-6 comes in five variants for different uses and is exported to 10 countries including Bangladesh, Pakistan, Malaysia, Sudan, Qatar, etc.**

We expect 'book to bill' to increase 5x by FY23E

While there is significant visibility on Bharat Dynamics' (BDL) orderbook, we believe the pipeline to ensure a steady stream of future order flow is also in place. DRDO has successfully completed trials of *Akash* Next-Generation (NG) and MPATGM on 21st Jul'21. Further, successful trials of other missiles such as *Nag*, *Helina* (helicopter-launched ATGM), and QRSAM were completed in FY21. Also, BDL is in advanced stages of discussion for manufacturing of Mistral and ASRAAM missiles in India. Company launched two new products at Aero India-2021, ***Dishani*** and ***Garudastra***.

- ***Dishani*** is an expendable air-deployed ASW sonobuoy system being designed and developed by NPOL, DRDO. BDL is the development partner for *Dishani*.
- ***Garudastra*** is an advanced anti-submarine self-guided state-of-the-art homing torpedo being designed and developed by NSTL, DRDO, with BDL as the development partner.

We expect, and as guided by the management, BDL is likely to have an orderbook worth Rs120bn and Rs230bn by the end of FY22 and FY23 respectively. The successful test launching of its pipeline products along with developed products such as *Akash* (Army 3rd and 4th regiments), *Astra* (IAF) weapon systems will add to the orderbook. Further, the company has entered into MoUs / agreements with foreign OEMs to expand its product portfolios (see *Table-2*).

Table 5: Significant MoUs signed (including signings at Aero India 2021)

MoU signed with	Details
MBDA, France	Manufacturing of two missile systems in India – Mistral and Asraam . MoU was signed in CY19 for final assembly, integration and test of these missiles in India. Jaguar has already integrated MISTRAAL missiles. Mistral was offered to the Indian Armed Forces for their VSHORAD requirement – integrated in <i>Dhruv</i> and LCH helicopters.
Roxel, France	For establishment of propulsion system in India for the missiles. Create the facility in India for domestic + export markets. Roxel supplies propulsion system to entire Europe.
Thales	Starstreak missiles – Short range ground-to-air missile. Wants to manufacture in India.
Javelin Joint Venture, US	For joint marketing and production of Javelin missile in India.
Almaz Antey Russia	For working together on projects for refurbishment of all missiles of Russian origin (manufacture of spares in India) available with the Indian Armed Forces as well as formation of a JV for sub-system manufacturing in India.
Naval Group, France	Electrical heavy-weight torpedo manufacture
IIT Kanpur	For joint development and manufacture of UAVs
ToT agreement with HEMRL	Transfer of technology for IR flares of CMDS.
IIT Kanpur & M/s Nocca Robotics	To manufacture high-end yet affordable, indigenous, micro controller based ventilators for both invasive and non-invasive purposes

Source: I-Sec research, Company data

Table 6: We expect 'book to bill' ratio to increase ~5x by FY23E

(Rs mn)	FY17	FY18	FY19	FY20	FY21	FY22E	FY23E	FY24E
Order Book	1,11,700	88,890	72,580	74,130	81,000	120,000	235,000	243,000
Book to Bill (x)	2.5	1.9	2.4	2.4	4.2	3.8	5.9	5.8
Inflow	19,848	22,958	14,383	32,502	26,140	71,000	155,000	50,000

Source: I-Sec research, Company data

As per the delivery timeline specified for different systems in Parliament in Mar'21, the Astra BVR missile and the anti-drone system will be available to the Armed Forces this year (CY21). The systems that the military can expect in CY22 include: 1) Quick Reaction Surface-to-air Missile (QRSAM) system to protect armoured columns from aerial attacks, 2) *Nag* and *Helina* anti-tank missiles with an effective range of 5km, and 3) Air Defence Fire Control Radar (ADFCR) that forms a key part of a ground-based air defence system in conjunction with anti-aircraft guns. While the *Nag* missile is launched from a modified infantry combat vehicle (called the *Nag* Missile Carrier, or Namica), the *Helina*, or helicopter-based *Nag*, is for mounting on the *Dhruv* advanced light helicopter.

BDL remains best placed to capture the export opportunity

Government focus on exports of indigenous defence products has increased in recent times. Recently, MoD cleared 156 defence equipment for exports including the indigenous LCA *Tejas*, artillery guns, battle tanks and missiles, anti-tank mines and explosives. ([Link](#)). The approved list includes indigenous SAM *Akash* Missile, BVR air-to-air missile *Astra*, ATGM *Nag*, and *Brahmos* weapon system. BDL manufactures these missiles. In Jul'21, the company bagged orders worth Rs5bn from the IAF to supply *Akash* missiles. Underwater weapons such as light torpedo, etc. were already being exported. However, recently, BDL has started exports of heavyweight torpedo as well. Further, other measure as listed below will also boost the company's exports:

- New export policy has been framed in line with MoD guidelines.
- High potential for export of defence products to friendly countries.
- Company participated in events such as Defence Expo in CY20, which was positioned as a major global event to showcase India's ability in defence manufacturing.

MRSAM and LRSAM – BDL playing key role in a successful joint development programme with Israel; can lead to future export opportunity

Barak-2 surface-to-air missile. First strategic military-industrial joint sector partnership between India and Israel witnessed its first success with *Barak-2* surface-to-air missile. The *Barak-2*, also known as *Barak-8* in Israel, was made available from CY13 in two versions, viz. the 70km-range vertically-launched medium-range surface-to-air missile (**MRSAM**) variant for the Indian Navy, and a 120km-range (**LRSAM**) variant for the Indian Air Force (IAF). Both variants are presently being co-developed by a consortium of entities that include India's Defence Research & Development Laboratory (DRDL), Bharat Electronics Ltd (BEL), and Bharat Dynamics (BDL) on one hand, and a consortium of Israel Aerospace Industries (IAI) and Tata Advanced Systems, called NOVA Integrated Systems Pvt Ltd. The MRSAM variant has also been inducted into service by the Indian Army. The MRSAM's critical design review was completed by early May'08 and its DRDL-developed 2-stage pulsed rocket motor was successfully test-fired earlier in CY08. The first six sets of these rocket motors were shipped to IAI by the DRDL in Jul'08 for further test and integration activities. Series production began in CY11 at the Hyderabad-based facilities of BDL and NOVA Integrated Systems. From the Indian side, the principal R&D players for both variants of the *Barak-2* are the DRDL, Hyderabad-based Research Centre Imarat (RCI) and Advanced Systems Laboratory (ASL), and the Bangalore-based Electronics R&D Establishment (LRDE). Israeli companies participating in the joint venture were MLM and ELTA Systems, business divisions of IAI. While IAI/MLM was responsible for developing the guided-missiles along with the DRDL, RCI and ASL, IAI/ELTA will co-develop along with the LRDE and BEL the command-and-control system and related fire-control system (for both variants of the *Barak-2*).

India and Israel inked the *Barak-2* MRSAM's joint 5-year R&D contract – valued at US\$556mn--on **27th Jan'06**, following 17 months of negotiations. For extended ground-based long-range air defence, India's Cabinet Committee on National Security on 12th Jul'07 approved a US\$2.5bn project to co-develop the LRSAM variant. Subsequently, on **27th Feb'09**, India signed a US\$1.4bn procurement contract with IAI for the *Barak-2* LRSAM. This was followed by a US\$1.1bn contract for procuring the *Barak-2*'s naval MRSAM variant. **In Jan'09**, Tata Advanced Systems and IAI entered into a military-industrial partnership for creating Nova Integrated Systems and pumped in an initial investment of US\$200mn. IAI held 26% and Tata 76% in the joint venture. NOVA Integrated Systems subsequently acquired an initial 30 acres of land at the Aerospace and Precision Engineering Special Economic Zone (being developed by the Andhra Pradesh Industrial Infrastructure Corp) in Adibatla, near Hyderabad, with work on infrastructure development taking off in August 2009.

Current plans call for the Indian Navy to install between 36 and 48 *Barak-2* LRSAMs on board each of its three Project 15A Kolkata-class guided-missile destroyers (DDG), which has been completed, as well as on board each of its seven planned Project 17A guided-missile frigates, and the four Project 15B DDGs. Further, Navy has also opted for this missile for installation on board its first indigenous aircraft carrier, which recently started its sea trials.

The vertical launch cell modules for the *Barak-2* MRSAM were developed by Larsen & Toubro, with an eight-cell module weighing 1,700kg. The *Barak-2* will use a novel nose-mounted dual guidance system: an active phased-array radar for guidance over the final 30km terminal phase of its flight, and a miniaturised, gimbal-mounted imaging infra-red seeker. The *Barak-2* will also have a 60kg pre-fragmented warhead that in turn will use a laser-based digital proximity fuse. Service ceiling of the MRSAM variant will be 16km, and 24 such missiles will be able to simultaneously engage 12 airborne targets. During its boost- and mid-course guidance phases, the SAM will use an integral data link to receive guidance cues from the shipborne EL/M-2248 MF-STAR S-band solid-state active phased-array multi-function surveillance, track and guidance radar developed by the ELTA systems subsidiary of IAI.

For the IAF's ground-based MRSAM variant, command-and-control plus fire-control will be provided by a containerised system weighing only 1,300kg. Target search and tracking will be performed by a ground-based version of the MF-STAR, known as the EL/M-2258. On the other hand, the MRSAM variant for the Army will make use of the motorised EL/M-2084 active phased-array multi-mode radar. Weighing about 7te, the MF-STAR uses four flat, lightweight antenna arrays. For weapon guidance, the MF-STAR supports different operating modes, including mid-course guidance for active air defence missiles and illumination enslavement for semi-active air defence missiles, thus making dedicated guidance radar systems redundant. The radar also incorporates an automatic splash detection and measurement mode to support naval gunnery in maritime security and close-in defence roles.

Order situation

LRSAM (Naval variant). Naval order of 40 launchers and 200 missiles (LRSAM) was placed in CY16, and integration with the Kamorta class corvette and INS Vikramaditya platform is ongoing. LRSAM has been deployed in Kolkata class destroyers. INS Vikrant, Vishakhapatnam class destroyers and P17A integration will follow subsequently. **BEL is the lead integrator for LRSAM. BDL has completed the deliveries for naval variant.**

MRSAM (Land variant). IAF has also placed order for 450 MRSAM, along with 18 launchers, fire control systems, seekers (nine squadrons). AWACS will be configured to launch MRSAMS while IACCS has already been integrated with MRSAMs.

MoD has disclosed that **Indian Army** has placed order for five regiments – each regiment has eight launchers and >40 missiles. Order will be fulfilled by FY24. **BDL is the lead integrator for MRSAM and has capacity of 100 missiles p.a.** Integration kit is being provided by JV of Kalyani Strategic solutions, Rafael Advanced Solutions JV (KRAS), and the order value is US\$2.5bn. MRSAM seeker is being manufactured by Data Pattern. Dual pulse rocket motor allows for agile target tracking. **The missile will work as an area defence for Indian Army and point defence for IAF. Order value for the Indian Army order is US\$2.5bn while the contract for IAF has been valued at US\$2bn.**

Future building blocks of Indian multi-tiered and multi-layered air defence missile shield will also accrue to BDL

Multi-layered and multi-tiered air defence system consists of 'Akash up to Prithvi' defence vehicle (PDV) for exo atmospheric defence (above 50km), and each missile covers varying ranges. We believe, the scope for BDL will be from short range to extended range surface-to-air missiles for ballistic missile defence shield. Of course, at regular intervals, with delay in indigenous solutions, imports have been used to fill the gap in the spectrum. However, there as well, we see scope for BDL similar to the case of VSHORAD.

Extended range SAM (XRSAM – IAF). DRDO is working on a new variant of LRSAM with a higher range of 250km for manoeuvrable targets and 350km for static/slow moving targets. This will be tractor-mounted and the configuration has been accepted by IAF as per DRDO. Existing launchers and radars with modifications can induct the new missiles with higher range. This will fit into India's multi-tiered multi-range air defence system and will probably fill in the gap between MRSAM (70km) and S-400 (400km) missiles. System development and trials should be completed by CY22 and production cycle should start by CY24.

Quick response SAM (QRSAM – Indian Army). This is a quick response missile, with a height ceiling of 8km (against *Akash's* 18km) and range similar to that of *Akash*. This can help protect the mechanised battle formation, is mobile, has a lighted warhead, and can work in hostile environments. It will move with the air defence regiment of the Indian Army. Inputs will be received from IACCS, SDR, from Datalink of combat aircraft and also from satellite feeds. **To fill the gap of development of QRSAM, *Spyder* SAM was imported from Israel by IAF to support the mobility of the mechanised formation – which is capable of launching *Python* and *Derby-5* missiles as interceptors.** The missile should be ready for production in FY22 and we believe BDL can be the lead integrator (along with BEL).

SRSAM (*Mitri*). DRDO and MBDA are jointly developing a next-generation short-range surface-to-air missile – SRSAM. Its range is ~30km and the supposed kill ratio is 100%. Post rejection of the *Trishul* missile, there was joint discussion with Israel and Russia. Final development was decided on Indian Navy's request with France. Budget of US\$500mn was allocated for the development of the missile. India and France were supposed to develop nine batteries with each having 40 missiles. This was to make up for the loss of *Akash* missile to Navy due to size-driven issues with implementation. For land-based variant of SRSAM, Mistral is working with BDL to manufacture *Mistral* missiles in India.

Defence: Sector in focus

The guided missile and torpedo market – India

India's defence budget of ~Rs4,782bn (US\$65.64bn) for FY22 includes capital allocation of ~Rs1,350 bn as against FY21's allocation of Rs1,137 bn, an 18.75% YoY improvement. Further, the government has set aside ~64% of capital allocation for buying locally produced weapons and system to boost indigenisation. MoD's gap between resource requirement and allocation has narrowed from 30% in FY19 to 25% in FY20. Further, the country plans to spend nearly US\$130bn on military modernisation and achieving self-reliance in defence production in the next five years. MoD estimates potential contracts worth US\$57.2bn for the domestic industry in the next 5-7 years (CY25-CY27), will further boost the domestic defence sector.

India's defence manufacturing sector has witnessed revenue CAGR of ~3.9% between CY16 and CY20 (Ministry of Defence). We believe, demand growth is likely to accelerate with: 1) rising concerns about national security, 2) indigenisation list including 209 items, 3) DAP-2020, and 4) other government policies focused on domestic manufacturing and exports. Gol has set the defence production target at US\$25bn by CY25 (including US\$5bn from exports by CY25), which, we believe, will further accelerate demand in the sector. Further, defence exports in the country witnessed strong growth in the last few years (*Table-7*).

Table 7: India's defence export revenues

(Rs bn)	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Exports	19.4	20.6	15.2	46.8	107.5	91.2	57.1

Source: Ministry of Defence, I-Sec research

The suppliers of Indian guided missile and torpedo market includes: 1) DPSUs with RDTE and manufacturing capabilities, 2) foreign companies, and 3) private sector in collaboration with foreign companies. At present, the Indian missile market is dominated by DPSU-produced missiles and foreign solutions. However, the government is focused on indigenising missile production in order to extricate the Armed Forces from any external dependencies in the future. The goal is to aim for complete in-house missile production and maintenance. In defence manufacturing, PSUs enjoy market share of ~79% while the remaining is with the private players. At present, indigenous development and manufacturing is carried out by three DPSUs – DRDO, BEL, and BDL. Amongst the three, BDL is the main player in manufacturing and is the sole manufacturer of SAMs, torpedoes, ATGMs in India.

Gol has announced various policies and measures under the **Make in India** and **Atmanirbhar Bharat** initiatives. The policies and measures include: 1) Positive Indigenisation List, 2) SRIJAN portal, 3) Defence Acquisition Procedure (DAP-2020), 4) Increasing FDI limit under automatic route to 74%, 5) policy for indigenisation of components and spares used in defence platforms, 6) establishing defence industrial corridors, 7) inter-governmental agreements with foreign nations, and 8) increased allocation for domestic procurement to 64.09% of the allocated amount for military modernisation. We believe these moves cumulatively will increase both domestic defence production and exports.

Table 8: Contracts with Indian vendors

Year	Number of total capital contracts signed	Number of capital contracts signed with Indian vendors	% of Indian vendors' share
FY17	46	23	50.0%
FY18	50	32	64.0%
FY19	47	30	63.8%
FY20	70	38	54.3%
FY21	44	34	77.3%
FY22 (up to Jun'21)	7	2	28.6%
Total	264	159	60.2%

Source: Rajya Sabha unstarred question no 1462, to be answered on 2nd August 2021, I-Sec research

As can be seen from *Table-8*, dependence on foreign OEMs for capital procurement has declined over the years. Traditionally, imports in defence constituted 60-65% of consumption, which has changed to 60-65% of domestic procurements now.

Discussing in details

Positive Indigenisation List: MoD notified a '1st Positive Indigenisation List' of 101 items on 21st Aug'20 and '2nd Positive Indigenisation List' of 108 items on 31st May'21. For the total 209 items under the combined Positive Indigenisation List, there would be embargo on imports beyond the stipulated timelines. The lists intend to implement the ban in a staggered manner up to Dec'25. We believe this is a big step to promote indigenisation in the defence sector. The two lists include some high-technology weapon systems like artillery guns, assault rifles, corvettes, sonar systems, transport aircrafts, light combat helicopters (LCHs), radars, wheeled armoured platforms, rockets, bombs, armoured command post vehicles, armoured dozor, and other items.

SRIJAN Portal: This portal was launched on 14th Aug'20 to promote indigenisation. To date, 10,929 items, which were earlier imported, have been displayed on the portal for indigenisation. The Indian industry has so far shown interest in 2,890 displayed items. DPSUs/OFB are interacting with these industries to facilitate indigenisation of the items as per extant procedures.

Defence Acquisition Procedure (DAP-2020): GoI has released DAP-2020 to streamline India's defence procurement system and promote the 'Make in India' initiative in defence manufacturing. The policy includes procurement plan documents, several new chapters and procurement categories, and a revamped offset guideline. It also puts emphasis on higher indigenous content in procurement, and faster acquisition.

Increasing FDI limit under automatic route to 74%: GoI increased FDI limit from 49% to 74% under automatic route for items with 50% indigenous production. However, defence procurement that falls under 'Buy (Indian-IDDM)', Make-I, Make-II, design development through DRDOs, DPSUs and Strategic Partnership Model (SPM) FDI would still be capped at 49%.

Policy for indigenisation of components and spares used in defence platforms: GoI notified the policy in Mar'19 with the objective to create an industry ecosystem able to indigenise the imported components (including alloys & special materials) and sub-assemblies for defence equipment and platforms manufactured in India.

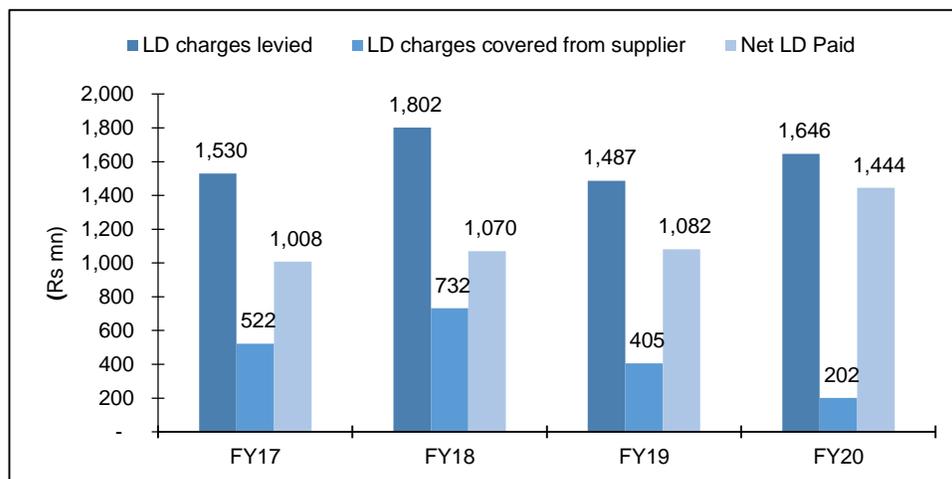
Establishing defence industrial corridors: GoI has established two defence industrial corridors, one each in Uttar Pradesh and Tamil Nadu. Combined investment

of Rs200bn is planned in these two defence corridors by CY24. Progress is reviewed regularly at the apex level. So far, investment of ~Rs33.4bn has been made in both the corridors by public as well private sector companies. Moreover, the respective state governments have also announced their aerospace & defence policies to attract private players as well as foreign companies including OEMs in these two corridors.

Inter-governmental agreements (IGAs): An Inter-Governmental Agreement (IGA) on ‘Mutual Cooperation in Joint Manufacturing of Spares, Components, Aggregates and other material related to Russian/Soviet Origin Arms and Defence Equipment’ was signed in Sep’19. The objective of the IGA is to enhance the after-sales support and operational availability of Russian origin equipment currently in service in Indian Armed Forces by organising production of spares and components in India by Indian industry by way of creation of JVs/Partnerships with Russian OEMs under the framework of the *Make in India* initiative.

Increased allocation for domestic procurement to 64.09%: In the Union Budget (FY22-BE), Gol set aside Rs714.4bn, or 64.09% of the military’s capital budget (as against Rs510bn allocated during FY21-BE) for buying locally-produced weapons. The allocation will power the purchase of *Tejas* LCA, Mk1A jets, LCHs, trainer aircrafts, *Arjun* Mk-1A tanks, ‘*Astra* beyond visual range’ missiles, *Pinaka* rocket mission, and anti-tank missiles. Going forward we expect, the company to remain a key beneficiary for Gol policies aims to reduce the import dependency and self- reliance.

Chart 4: Liquidated damages paid/received by BDL



Source: Annual report

Competition from peers

Barring BEL in the PSU space, there is currently no other company in similar business in India as BDL. Contracts from MoD are generally awarded to the company on the basis of nomination, whereas export contracts are based on customer requirement.

Highly regulated Industry

The defence/missile manufacturing industry is heavily regulated by both Indian and international authorities. Among other things, the missiles are required to meet the standards and requirements of the MoD and the Indian Armed Forces. We believe any significant increase in cost due to changes in regulations in the defence / missile

manufacturing industry may adversely affect BDL's business, financial condition and results of operations. Further, business operations are subject to extensive government regulations and BDL is required to obtain and maintain a number of statutory and regulatory permits and approvals under Central, state and local government rules in India, for carrying out business at each manufacturing facility. If there is any failure in complying with the applicable regulations, or if the regulations governing business are amended, the company may incur increased costs, be subject to penalties, have approvals and permits revoked, or suffer a disruption in operations, any of which could adversely affect business.

Valuation and key risks: Initiate with a BUY

We initiate coverage on Bharat Dynamics (BDL) with a **BUY** and target price of Rs600/share based on DCF valuation. The implied FY23E and FY24E P/E is ~ 15x and 14.5x respectively. Our biggest confidence in the valuation comes from the orderbook, which is expected to cross Rs230bn by FY23E.

Key risks to our valuation: Delay in execution, higher LDs accruing on account of the same, lower than expected orderbook accretion, and higher material costs driven by lower indigenisation leading to lower margins.

Table 9: We initiate with a BUY and a target of Rs600/share

(Rs mn)	FY22E	FY23E	FY24E	FY25E	FY26E	FY27E	FY28E	FY29E	FY30E
Sales	32,000	40,000	42,000	44,100	46,305	48,620	51,051	53,604	56,284
EBITDA	7,539	9,886	10,383	10,896	11,195	11,487	12,028	12,584	13,439
Tax	1,877	2,452	2,562	2,675	2,734	2,790	2,908	3,030	3,227
PAT	5,571	7,279	7,604	7,940	8,116	8,281	8,632	8,994	9,580
NOPAT	5,662	7,434	7,821	8,221	8,460	8,697	9,120	9,554	10,212
Working Capital Change	(4,915)	2,945	(6,356)	(975)	(1,087)	(1,204)	(538)	(568)	(572)
Capex	(1,000)	(883)	(883)	(883)	(883)	(1,000)	(1,000)	(1,000)	(1,000)
FCF	(254)	9,496	582	6,364	6,491	6,493	7,582	7,986	8,640
Terminal Value									110,159
Total FCF	(254)	9,496	582	6,364	6,491	6,493	7,582	7,986	118,799
Cost of Equity	12%								
WACC	10%								
Terminal Growth	2%								
NPV of FCF (FY23E)	86,158								
Net Debt at FY22E	(22,186)								
Net Equity value	108,344								
Value per share	600								

Source: Company data, I-Sec research

We are looking at FY21-FY30E Sales / EBITDA / PAT CAGRs of 13 / 16 / 16% respectively. This compares to ~1-2% revenue CAGR between FY14-21. Thus, we expect BDL to materially outperform across operational parameters on the back of strong order inflows over the next decade. We expect gross margins to normalise at 45% (from current 55%). This has been assumed keeping in mind the increasing complexity of missile design – more indigenisation can work as a margin lever and help deliver beat for BDL in terms of EBITDA and PAT.

Other key risks. ESG comes across as a key risk for all the Indian defence primes in the context of investibility. Looking at the peer set and ratings of the Global ESG rating companies like Sustainalytics or MSCI, we don't see cause for any major concern from the ESG angle.

Table 10: ESG rating of BDL's global peers

	Sustainalytics	MSCI
General Dynamics	Rating 37.6, Risk Category: High	BBB, upgraded in Dec'20. Average among 31 companies in aerospace and defence
Raytheon	Rating 32.9, Risk Category: High	BBB, downgraded in Jun'21.
Leonardo	Rating 26.6, Risk Category: Medium	NA
BAE Systems	Rating 34.5, Risk Category: High	NA
Thales	Rating 29.8, Risk Category: Medium	AA, leader

Source: I-Sec research

Table 11: Valuation of global peers

(US\$ mn)	Revenue	EBITDA	PAT	Current Market Cap	PE -1Y (x)	PE 1Y (x)	PE 2Y (x)
Boeing Co/The	58,158	(10,232)	(11,873)	132,079	NA	NA	40.7
Dassault Aviation SA	6,270	481	346	9,907	24.6	14.4	14.1
Airbus SE	56,986	2,605	(1,294)	103,425	NA	39.6	24.4
Textron Inc	11,651	1,047	309	15,380	26.3	21.7	17.8
General Dynamics	37,925	5,321	3,167	54,236	13.5	17.1	15.6
Saab AB	3,863	324	117	4,064	29.7	16.9	14.9
Hexcel Corp	1,502	171	32	5,005	197.3	328.0	41.2
Raytheon	29,176	5,618	3,343				
Lockheed Martin Corp	65,398	10,157	6,833	101,919	11.9	13.7	13.1
Leonardo	15,311	1,493	275	3,839	5.6	6.5	5.6
Bombardier Inc	6,487	1,422	(868)	2,856	NA	NA	NA
LISI	1,404	101	(43)	1,801	NA	39.0	18.7
Teledyne Technologies Inc	3,086	626	402	20,710	37.7	35.0	30.1
Korea Aerospace Industries Ltd	2,399	233	63	2,822	33.7	39.9	30.3
BAE Systems	24,749	3,256	1,668	24,538	12.0	11.9	11.0
Moog Inc	2,885	179	9	2,577	46.8	15.6	14.8
Hanwha Aerospace Co Ltd	4,518	416	103	2,234	11.9	14.2	14.5
Rolls-Royce Holdings PLC	15,180	235	(4,070)	11,144	NA	NA	26.9
Thales SA	19,397	2,172	552	22,525	33.0	15.2	13.1
Northrop Grumman Corp	36,799	5,652	3,189	57,666	13.8	14.0	14.0
Senior PLC	942	(145)	(203)	902	NA	NA	48.8
Meggitt PLC	2,162	(128)	(403)	4,753	NA	24.7	17.0
Triumph Group Inc	1,870	(210)	(451)	1,257	NA	30.7	16.9
Kawasaki Heavy Industries Ltd	14,041	528	(182)	3,496	NA	23.8	13.9
Woodward	2,496	360	240	7,669	22.9	32.3	26.5
MSA Safety	1,348	215	120	6,328	41.1	34.1	28.6
Rheinmetall	6,708	740	(31)	4,145	NA	10.0	8.7
Aerospace Industrial	715	54	13	1,006	69.0	40.0	18.7
IHI Corp	10,498	1,020	124	3,567	25.5	10.2	9.5
TransDigm Group	5,103	2,063	699	35,715	54.3	57.4	37.6
Spirit AeroSystems Holdings	3,405	(526)	(870)	4,603	NA	NA	333.3
HEICO Corp	1,787	483	314	17,397	45.9	62.4	49.9
Astronics Corp	503	(65)	(116)	555	NA	NA	21.7
Safran SA	18,988	2,656	402	57,928	139.7	39.6	26.3
MTU Aero Engines AG	4,541	485	159	13,032	81.1	34.9	26.2
CAE Inc	2,259	279	(36)	8,956	289.9	39.6	26.0
Ultra Electronics Holdings PLC	1,104	185	108	3,061	17.6	23.7	22.1
Kongsberg Gruppen ASA	2,731	347	308	5,072	22.0	22.6	19.2
Honeywell International Inc	32,637	6,912	4,779	158,274	31.3	28.3	24.9
Curtiss-Wright Corp	2,391	446	201	4,794	15.5	16.0	14.6
Thyssenkrupp AG	32,371	(4,464)	10,737	6,140	NA	NA	11.2
Hitachi Metals Ltd	7,184	11	(399)	8,344	NA	51.8	27.1
Haynes International Inc	381	22	(6)	475	NA	NA	42.1
Carpenter Technology Corp	2,181	164	2	1,856	11.0	NA	NA
APERAM SA	4,138	392	200	4,828	15.6	8.7	10.4
VSMPO-AVISMA Corp PJSC	1,251	462	92	4,722	34.9	NA	NA
Average Global					47.2	35.2	29.6
Average Peerset					16.0	12.7	11.3
BDL (I-Sec)	262	47	35	1000	28.4	13.2	10.1

Source: Bloomberg, I-Sec research

Table 12: Valuation of global peers (cont'd)

(US\$ mn)	EV/EBITDA -1Y (x)	EV/EBITDA 1Y (x)	EV/EBITDA 2Y (x)	ROE 1Y (%)	RoE 2Y (%)	PEG 1Y
Boeing Co/The	NA	36.9	18.8	(3.3)	(36.9)	2.3
Dassault Aviation SA	9.4	7.7	8.3	11.4	10.5	0.7
Airbus SE	35.7	14.0	10.8	27.0	34.5	1.1
Textron Inc	15.4	11.8	10.4	11.7	13.3	0.5
General Dynamics	13.4	13.1	12.3	20.0	20.6	1.8
Saab AB	9.7	6.9	6.3	9.3	9.9	0.4
Hexcel Corp	66.5	28.8	17.4	1.1	7.8	0.4
Raytheon				25.7	22.3	
Lockheed Martin Corp	11.0	10.6	10.1	102.0	74.4	3.0
Leonardo	4.1	4.5	4.2	9.9	11.3	
Bombardier Inc	10.2	17.3	11.9	14.0	8.7	NA
LISI	14.9	8.8	7.2	4.9	7.3	NA
Teledyne Technologies Inc	31.7	24.4	16.9	11.1	NA	1.5
Korea Aerospace Industries Ltd	15.1	11.6	9.9	6.8	8.2	1.2
BAE Systems	8.7	7.9	7.5	29.6	26.5	1.6
Moog Inc	23.6	10.2	9.7	NA	NA	NA
Hanwha Aerospace Co Ltd	7.6	8.3	7.8	6.8	6.2	NA
Rolls-Royce Holdings PLC	65.5	12.1	7.3	6.6	(10.3)	NA
Thales SA	9.7	8.4	7.5	23.6	23.4	0.5
Northrop Grumman Corp	9.5	11.0	12.5	40.4	33.6	2.2
Senior PLC	NA	15.5	11.0	(0.8)	3.1	NA
Meggitt PLC	NA	13.2	10.6	7.1	9.6	0.6
Triumph Group Inc	NA	13.3	10.8	(3.8)	(9.4)	4.2
Kawasaki Heavy Industries Ltd	15.5	9.0	7.7	4.0	5.8	NA
Woodward	22.6	17.9	15.3	12.0	13.3	2.0
MSA Safety	32.8	22.1	19.2	NA	20.2	NA
Rheinmetall	5.7	4.8	4.3	16.6	16.4	0.6
Aerospace Industrial	36.8	32.6	15.5	6.3	11.8	NA
IHI Corp	8.3	6.7	6.5	11.7	10.8	NA
TransDigm Group	32.4	24.4	20.1	(15.8)	(32.2)	1.1
Spirit AeroSystems Holdings	NA	49.2	13.3	(41.4)	1.8	NA
HEICO Corp	41.1	35.9	30.1	13.8	15.4	3.6
Astronics Corp	NA	25.2	10.5	NA	NA	NA
Safran SA	22.7	17.2	13.4	10.1	12.9	0.6
MTU Aero Engines AG	28.3	17.4	14.2	12.2	14.5	1.0
CAE Inc	34.7	15.7	12.1	8.2	11.5	NA
Ultra Electronics Holdings PLC	14.8	15.1	14.1	19.3	18.5	6.0
Kongsberg Gruppen ASA	12.0	11.7	10.5	14.6	16.9	NA
Honeywell International Inc	23.3	19.6	17.7	30.8	32.8	1.9
Curtiss-Wright Corp	14.0	10.6	9.9	15.5	16.0	NA
Thyssenkrupp AG	NA	0.9	0.7	(1.8)	4.1	NA
Hitachi Metals Ltd	851.5	12.1	10.2	4.5	7.1	NA
Haynes International Inc	NA	44.7	11.2	NA	NA	NA
Carpenter Technology Corp	NA	431.0	14.7	(9.7)	(0.8)	NA
APERAM SA	9.3	5.6	6.2	19.8	15.0	0.3
VSMPO-AVISMA Corp PJSC	11.3	NA	NA	NA	NA	NA
Average Global	43.9	25.6	11.5	12.0	11.9	1.6
Average Peerset	9.0	8.5	7.9	21.8	20.8	1.3
BDL (I-Sec)	16.7	7.4	4.4	16.5	17.2	3.00

Source: Bloomberg, I-Sec research

Financial summary

Table 13: Profit and Loss statement

(Rs mn, year ending Mar 31)

(Rs mn)	FY20	FY21	FY22E	FY23E	FY24E
Operating Income (Sales)	31,049	19,138	32,000	40,000	42,000
Operating Expenses	23,494	15,690	24,461	30,114	31,617
EBITDA	7,555	3,447	7,539	9,886	10,383
% margins	24.3	18.0	23.6	24.7	24.7
Depreciation & Amortization	964	945	1,046	1,109	1,172
Gross Interest	47	39	45	45	45
Other Income	881	946	1,000	1,000	1,000
Recurring PBT	7,424	3,409	7,448	9,732	10,165
Add: Extra ordinaries	-	18	18	18	18
Less: Taxes	2,076	831	1,877	2,452	2,562
Less: Minority Interest	-	-	-	-	-
Add: Share of profit from associates	-	-	-	-	-
Net Income	5,349	2,578	5,571	7,279	7,604
Recurring Net Income	5,349	2,578	5,571	7,279	7,604

Source: Company data, I-Sec research

Table 14: Balance sheet

(Rs mn, year ending Mar 31)

(Rs mn)	FY20	FY21	FY22E	FY23E	FY24E
Assets					
Total Current Assets	45,740	48,990	57,170	71,598	82,321
of which cash & cash eqv.	6,635	15,610	17,658	29,456	32,339
Total Current Liabilities & Provisions	23,127	25,500	26,717	32,292	33,775
Net Current Assets	22,613	23,490	30,453	39,306	48,546
Investments	39	45	45	45	45
Net Fixed Assets	8,909	8,752	8,707	8,481	8,191
Capital Work-in-Progress	421	215	215	215	215
Other non current assets	1,744	1,615	1,615	1,615	1,615
Total Assets	33,725	34,117	41,035	49,662	58,613
Liabilities					
Borrowings	22	-	-	-	-
Deferred Tax Liability	-	-	-	-	-
Other long term liabilities	7,635	7,270	7,270	7,270	7,270
Minority Interest	-	-	-	-	-
Equity Share Capital	1,833	1,833	1,833	1,833	1,833
Face Value per share (Rs)	10	10	10	10	10
Reserves & Surplus	24,235	25,015	31,933	40,560	49,511
Net Worth	26,068	26,847	33,766	42,393	51,343
Total Liabilities	33,725	34,117	41,036	49,662	58,613

Source: Company data, I-Sec research

Table 15: Cashflow statement

(Rs mn, year ending Mar 31)

(Rs mn)	FY20	FY21	FY22E	FY23E	FY24E
Operating Cashflow	6,139	2,924	6,662	8,433	8,821
Working Capital Changes	-1,096	7,756	-4,915	2,945	-6,356
Capital Commitments	-569	-567	-1,000	-883	-883
Free Cashflow	4,473	10,113	746	10,496	1,582
Investing Cashflow	237	-6,771	-	-	-
Issue of Share Capital	-	-	-	-	-
Buyback of shares	-	-	-	-	-
Inc (Dec) in Borrowings	-9	-11	-	-	-
Dividend paid	-1,867	-1,691	1,347	1,347	1,347
Others	-33	-25	-45	-45	-45
Extraordinary Items	-	-	-	-	-
Chg. in Cash	2,802	1,616	2,048	11,798	2,884

Source: Company data, I-Sec research

Table 16: Key ratios*(Year ending Mar 31)*

	FY20	FY21	FY22E	FY23E	FY24E
Per Share Data (Rs)					
EPS(Basic Recurring)	29.2	14.1	30.4	39.7	41.5
Diluted Recurring EPS	29.2	14.1	30.4	39.7	41.5
Recurring Cash EPS	34.4	19.2	36.1	45.8	47.9
Book Value per share (BV)	142.2	146.5	184.2	231.3	280.1
DPS (Rs)	7.0	7.0	9.0	9.0	9.0
DP S (yield) %	2.2	2.2	2.8	2.8	2.8
Growth Ratios (%)					
Operating Income	1.2	-38.4	67.2	25.0	5.0
EBITDA	21.4	-54.4	118.7	31.1	5.0
Recurring Net Income	26.6	-51.8	116.1	30.7	4.5
Valuation Ratios (x)					
P/E	12.0	24.9	11.5	8.8	8.4
P/CEPS	9.3	16.7	8.9	7.0	6.7
P/BV	2.5	2.4	1.9	1.5	1.2
EV / EBITDA	7.6	14.1	6.2	3.5	3.1
EV / FCF	12.9	4.8	62.3	3.3	20.1
Operating Ratios (%)					
Raw Material/Sales	32.7	50.7	48.0	51.0	51.5
SG&A/Sales	-	-	-	-	-
Other Income / PBT	11.9	27.8	13.4	10.3	9.8
Effective Tax Rate	28.0	24.4	25.2	25.2	25.2
NWC / Total Assets	0.7	0.7	0.7	0.8	0.8
Inventory Turnover	1.8	0.6	1.0	1.4	1.0
Asset Turnover	0.9	0.6	0.8	0.8	0.7
Net D/E Ratio (x)	-0.3	-0.6	-0.5	-0.7	-0.6
Profitability Ratios (%)					
Rec. Net Income Margins	17.2	13.5	17.4	18.2	18.1
RoCE	17.3	6.2	13.7	14.9	12.9
RoNW	20.5	9.6	16.5	17.2	14.8
EBITDA Margins	23.5	18.0	23.6	24.7	24.7

Source: Company data, I-Sec research

Management (CMD) interview CNBC on Jul'21 – Key takeaways

- BDL got order worth Rs5bn from IAF to manufacture and supply *Akash* missiles; 50% will be executed this year.
- *Astra* order and *Akash* 3rd and 4th regiment orders are expected to accrue soon.
- Guided revenues for FY22 is Rs32bn and for FY23 is Rs40bn (our estimates are comparable to management guidance).
- Expected orderbook by FY22E-end is Rs120bn and by FY23E-end is Rs230bn.
- Expected EBIDTA margin for FY22 is 27%-28% (we have assumed lower margins).
- **Capex and dividend:** All major infrastructure requirement is in place and capex for new plant for rocket motor manufacturing is under way; lined up capex is ~Rs3bn-4bn for next three years including current year.
- Dividend policy: Minimum dividend at 5% of net worth.
- **Indigenous manufacturing: Opening new frontiers.** Contracts with Roxel are getting finalised for manufacturing of rocket motors in India. In addition, BDL has tied up for offset orders from MBDA and finalised contract with MBDA for manufacture of ASRAM missiles in India. Also, BDL is working for Mistral missiles with MBDA. BDL intends to carry out integration of these missiles in India while also aiming for the maintenance orders for these missiles (for Indian Army / Air Force).

Management Team

At present, BDL has six Board members, of which two are government nominee directors. Qualifications and experience is mentioned below (*Table 18*).

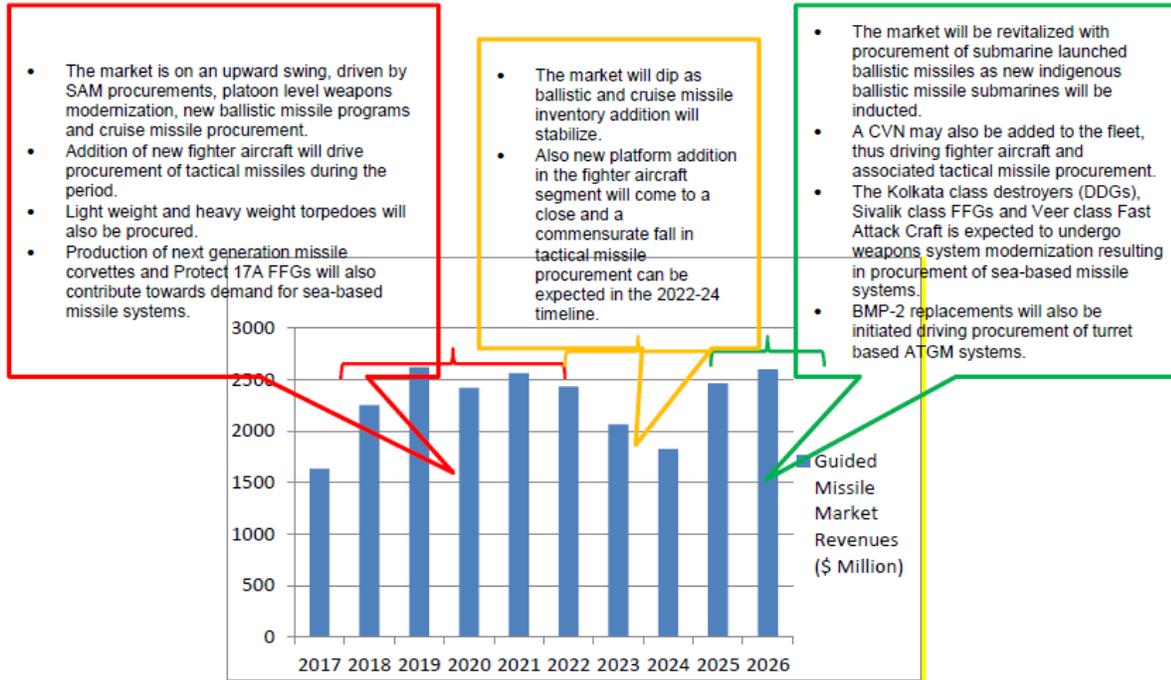
Table 17: Profile of the management team

Name	Experience
Cmdr Siddharth Mishra (Retd) Chairman and Managing Director	<ul style="list-style-type: none"> Education: B.Tech, M.Sc, Master of Management Science and alumnus of Naval Academy and Naval College of Engineering, Lonavala. Experience: Commissioned in the Electrical Branch of Indian Navy in CY1985. General Manager (Defence) at ECIL, Hyderabad, in CY16. <p>In his career, he held varied operational and staff appointments, in addition to heading four major groups at ECIL. He was instrumental in inducting and managing state-of-the-art technology, including policy framing and was in the core team and represented Indian Navy for induction of the aircraft carrier into the Services.</p>
MSR Prasad Government Nominee Director - Director General	<ul style="list-style-type: none"> Education: B.Tech, M.Tech. in aeronautical engineering from IIT Bombay Experience: Scientist at DRDO, Deputy Project Director – B05, Programme Director of the Advanced Naval Systems Programme, Director of DRDL. <p>His contribution in the areas of aerospace structural design, analysis, and structural dynamics studies for various missile projects is noteworthy.</p>
N P Diwakar Director - Technical	<ul style="list-style-type: none"> Education: B.E. in Mechanical Engineering Experience: Oil & Natural Gas Corporation Ltd, Executive Director (Bhanur Unit) at BDL, Worked in tandem with DRDO <p>Instrumental in establishing production lines and man power planning of <i>Akash</i> missiles and <i>Konkurs</i> missiles to meet requirement of the Services, establishing production facilities for <i>Astra</i> Missile at Bhanur.</p>
N. Srinivasulu Director - Finance & CFO	<ul style="list-style-type: none"> Education: B.Com., MBA in Finance Experience: General Manager (Finance) at BDL <p>Played instrumental role in coordinating with anchor investors for the maiden IPO of the company, implementation of Indian Accounting Standards, Treasury Management, Taxation, Budgetary Control, and Policy formulation.</p>
P. Radhakrishna Director - Production	<ul style="list-style-type: none"> Education: B.Tech. and M.Tech. Experience: General Manager – Production in the Bhanur Unit of BDL <p>Established effective supply chain management in AntiTank Guided Missile Projects by developing multi-vendor base and import substitution. Played a key role in modernising and establishing state-of-the-art manufacturing facilities to improve productivity.</p>
Chandraker Bharti Government Nominee Director	<ul style="list-style-type: none"> Education: Engineering graduate, Indian Administrative (IAS) Services in Sep'1996, M.Sc. in Public Management & Policy. Experience: Additional Commissioner, (Department of Sales Tax), Director, Ministry of Commerce & Industry, Development Commissioner in various Government Departments such as agriculture, finance & planning, industry & commerce, information technology, Secretary, Health & Family Welfare and Environment & Forest Departments, Joint Secretary (Aero) in the Department of Defence Production, Ministry of Defence, Government Nominee Director (Part-Time Official Director) on the Board of Hindustan Aeronautics Limited.

Source: Company data, I-Sec research

Annexure – Scoping the market size

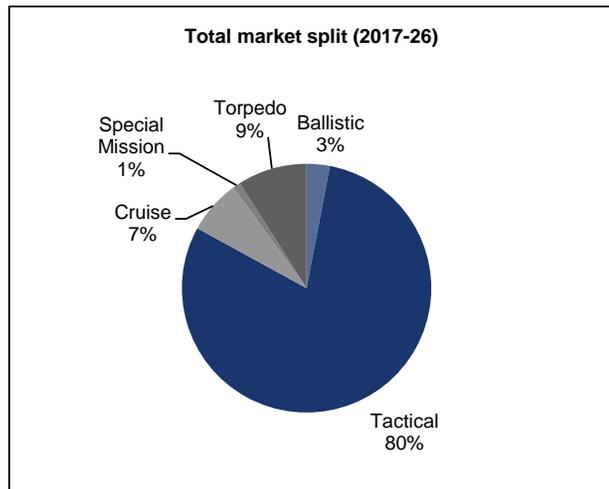
Frost and Sullivan forecasts a market size of US\$24.5bn in CY17-CY26 for guided missiles and torpedoes (Source: BDL DRHP)



Source: Company data, I-Sec research.

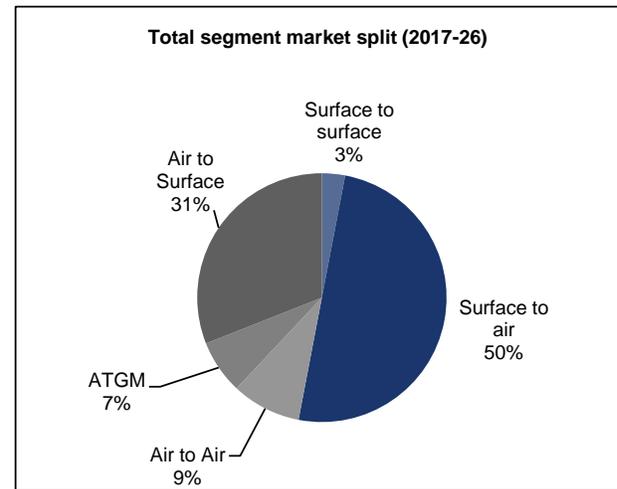
Total market split of missiles

Chart 5: Tactical missiles form the majority of India’s missile mix...



Source: Company data, I-Sec research.

Chart 6: ...And within tactical, surface to air contributes to 50% of mix



Source: Company data, I-Sec research.

Chart 7: Global competitive landscape – Guided missile and Torpedo systems



Source: Company data, I-Sec research.

Source: Frost & Sullivan

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