

**India**
**ADD** (previously HOLD)

Consensus ratings\*: Buy 5 Hold 1 Sell 0

Current price:	Rs444
Target price:	Rs575 ▲
Previous target:	Rs325
Up/downside:	29.5%
InCred Research / Consensus:	2.2%
Reuters:	BARA.NS
Bloomberg:	BDL IN
Market cap:	US\$1,088m Rs81,450m
Average daily turnover:	US\$2.5m Rs188.3m
Current shares o/s:	1.8m
Free float:	25.1%

\*Source: Bloomberg

**Key changes in this note**

- FY22F-23F EBITDA raised by 3-21%.
- FY22F-23F PAT raised by 7-26%.



Source: Bloomberg

Price performance	1M	3M	12M
Absolute (%)	(3.2)	14.2	26.9
Relative (%)	(0.3)	16.5	10.2

Major shareholders	% held
Promoters	74.9
HDFC Mutual Fund	7.5
LIC	8.0

**Analyst(s)**

**Sachin MANIAR**

T (91) 22 4161 1545  
E sachin.maniar@incredcapital.com

**Abhishek JOSHI**

T (91) 22 4161 1559  
E abhishek.joshi@incredcapital.com

# Bharat Dynamics Ltd

## Looking at an upturn

- BDL's order inflows gain traction, which along with strong order prospects for Akash & Astra missiles will boost order backlog and provide revenue visibility.
- Margins to sustain at higher levels with localization and cost control measures. Exports as well as multiple collaborations provide further growth opportunities.
- We upgrade the stock to ADD with a higher TP of Rs575, from Rs325 earlier.

### Order inflow gains traction

BDL gains traction in order inflow with a recent Konkurs-M ATGM order worth Rs31.3bn, and YTD order inflow at ~Rs48.6bn vs. avg. annual order inflow of Rs29bn over FY19-21. BDL has a strong order pipeline where it expects orders worth Rs~150bn to be finalized in the near term which includes Akash 3rd and 4th regiment for Army, Astra Weapon System, Konkurs-M Missiles (awarded), and R-73 missile refurbishment order worth ~Rs150bn. Defence Research and Development Organisation (DRDO) conducted a flurry of tests in last 15 months (see list) for missiles. BDL is the prime production agency for missiles.

### Exports, multiple collaborations provide further opportunities

BDL witnessed exports order inflow of Rs3.5bn in 9MFY22 vs. average export revenue of Rs1.5bn over FY20-21. With the government's focus to boost defence exports, BDL has already got clearance for export of Akash Weapon System (AWS) to nine friendly foreign countries. BDL has entered into multiple MoUs to be a part of global supply chain which includes Naval Group France & Rafael Advanced Defence Systems Ltd (for under-water weapon system), UK Thales (for indigenous manufacture of STARStreak missiles), Roxel, France (for establishing propellant manufacturing facility), STE (SPETSTECHNOEXPORT), Ukraine (for refurbishment/ life extension of existing missiles) along with an offset agreement with MBDA France/UK for ASRAAM and Mistral missiles.

### Revenue growth to see uptick; margins to sustain at higher levels

We expect revenue/EBITDA CAGR of 32%/43%, respectively, over FY21-24F (on a low base) based on current order backlog and new prospects. Almost 19%/43% of FY23F/24F revenue estimates, respectively, come from new orders to be booked. BDL indigenized 70 items in FY21, saving imports worth Rs1.45bn, and has made an indigenization plan for next five years with a target to indigenize 166 items. Indigenization of Konkurs-M, Invar, Milan-2T, Akash, TAL-XP and Varunastra has been achieved up to 96.3%, 78.6%, 71%, 96%, 91% and 86%, respectively. A further rise in service revenue bodes well for margins.

### Upgrade rating to ADD from HOLD

Considering order inflow traction and strong order prospects in the near as well medium term, we see traction in revenue growth for next few years after witnessing sluggish revenue for past three years. We raise FY22-23F EPS by 7-26% on higher margins and upgrade the stock to ADD from HOLD with a target price of Rs575 (14x vs. 12x earlier) as we roll over to FY24F EPS. Any delay in finalization of large orders is a downside risk.

### Financial Summary

	Mar-20A	Mar-21A	Mar-22F	Mar-23F	Mar-24F
Revenue (Rsm)	30,952	19,138	28,512	38,328	43,610
Operating EBITDA (Rsm)	7,276	3,447	6,405	8,665	10,017
Net Profit (Rsm)	5,349	2,578	4,856	6,555	7,525
Core EPS (Rs)	29.2	14.1	26.5	35.8	41.1
Core EPS Growth	31.7%	(51.8%)	88.4%	35.0%	14.8%
FD Core P/E (x)	15.23	31.60	16.77	12.43	10.82
DPS (Rs)	8.3	8.3	10.6	14.3	16.4
Dividend Yield	1.86%	1.86%	2.38%	3.22%	3.70%
EV/EBITDA (x)	10.29	19.10	10.07	7.55	6.43
P/FCFE (x)	17.41	7.52	24.91	47.00	20.55
Net Gearing	(25.4%)	(58.1%)	(56.9%)	(47.6%)	(44.5%)
P/BV (x)	3.12	3.03	2.74	2.42	2.13
ROE	21.9%	9.7%	17.2%	20.7%	20.9%
% Change In Core EPS Estimates			26.32%	6.84%	
InCred Research/Consensus EPS (x)			0.79	0.93	0.86

SOURCES: INCRED RESEARCH, COMPANY REPORTS

## Looking at an upturn

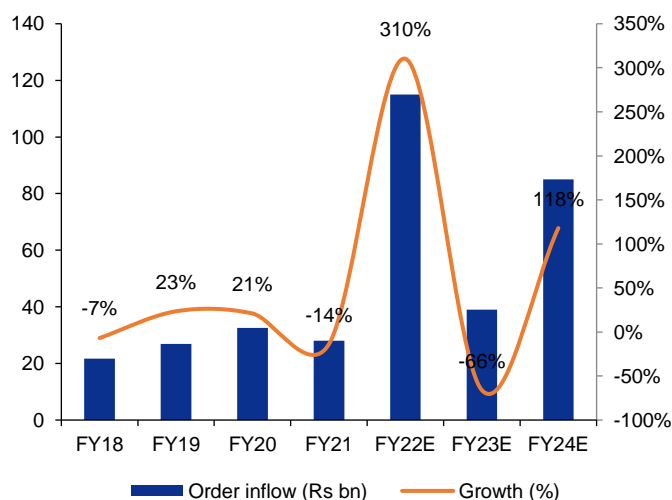
### Gaining traction

Bharat Dynamics Ltd (BDL) aims at enhancing its market position by expanding capabilities, capitalising on opportunities in domestic and international markets, and enhancing its competitive advantage by focusing more on indigenisation. BDL intends to increase R&D activities in association with Defence Research and Development Organisation or DRDO, exploring various business initiatives with foreign OEMs, and diversifying its offerings with new products.

### Order momentum improves; project pipeline is strong ➤

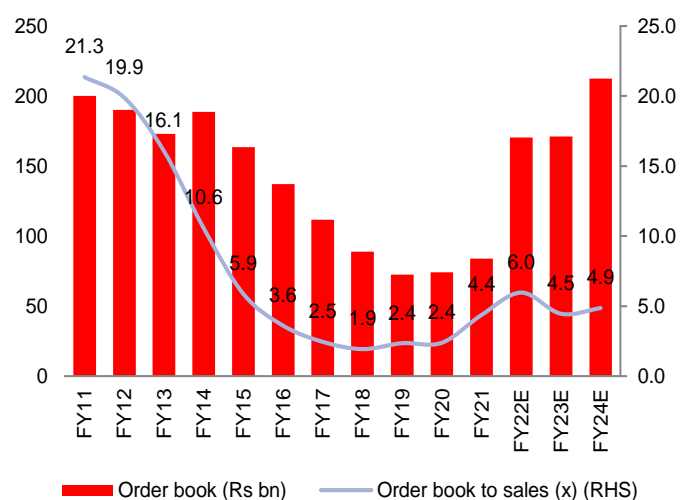
- Order inflow:** With a recent Konkurs-M ATGM order worth Rs31.3bn, order inflow YTD FY22 stood at Rs48.6bn vs. average annual order inflow worth Rs29bn over FY19-21. Other orders in FY22 order inflow list includes Akash missile order from Indian Air Force (IAF) worth ~Rs5bn and refurbishment order for IGLA-1M missiles worth Rs4.7bn apart from an export order worth Rs3.5bn.
- Project pipeline:** BDL has a strong order pipeline where it expects orders worth Rs~150bn to be finalized in the near term which includes Akash 3rd & 4th regiment for Army, Astra Weapon System, Konkurs-M Missiles, and R-73 missile refurbishment order worth ~Rs150bn. The company is pursuing for placement of orders expeditiously. Other orders in the pipeline include Amogha III, MPATGM (Man Portable Anti-Tank Guided Missile), NAG, Dishani, Garudastra Akash (NG), VLSRSAM (Vertical Launch Short Range Surface to Air Missile), VLPGM (Missile Launched Precision Guided Munitions), Mobile Target Emulator (MTE-PSO), CMDS Mk-II with AI Feature, and ERASR, MIGM (Multi Influential Ground Mine).
- Project sanction from Indian Navy:** BDL has also received a project sanction order from Indian Navy for development and manufacture of 'Mobile Target Emulator 5' under Make-II category. BDL will develop a prototype, and it expects to fetch good business once it is developed.
- Order backlog (OB):** The order book stood at ~Rs114bn as on date vs. Rs83bn in FY21.

Figure 1: Large orders like Akash, Astra and Konkurs ATGM to drive order inflow in FY22F/23F...



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 2: ...which will boost order backlog from FY22F



SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 3: Near-term and medium-term product pipeline**

Near term order pipeline	Order size opportunity (Rsbn)	Other key products in pipeline	
Akash IA order for two regiments	150	Amogha III	Dishani
Astra		Man-Portable Anti-Tank Guided Missile (MPATGM)	Garudastra
Konkurs-M		Akash NG	Vertical Launch Short Range Surface to Air Missile (VLSRSAM)
R-73 Refurbishment		NAG MISSILE	VLPGM (Missile Launched Precision Guided Munitions)
Very Short-Range Air Defence System (VSHORAD)		Counter Measure Dispensing System-II (CMDS- MKII with AI feature)	Muti Influence Ground Mine (MIGM)

SOURCES: BDL PRESENTATION, INCRED RESEARCH, COMPANY REPORTS

### DRDO tested multiple missiles recently, creating a future order pipeline for BDL ➤

- BDL is the prime production agency for manufacturing missiles in India and with the support of DRDO, has been manufacturing various types of indigenously designed and developed missiles and under-water weapons.
- DRDO has tested several missiles recently which includes quasi-ballistic surface-to-surface tactical new generation 'Pralay', fire-and-forget Man Portable Antitank Guided Missile (MPATGM) with miniaturized infra-red imaging seeker and advanced avionics, Short-Range Surface-to-Air Missile (VL-SRSAM) for Indian Navy to neutralize threats at close ranges like sea-skimming targets and others.
- DRDO has consistently worked towards enhancing/upgrading the following missile systems further:

**Figure 4: Missile tests done by DRDO in last two years**

Date	Name of Service	Product/Equipment	Details
20-Jan-22		BrahMos Supersonic Cruise Missile	DRDO successfully test-fired from integrated test range BrahMos supersonic cruise missile. The missile with the modified control system has been fine tuned to achieve an enhanced capability. BrahMos Aerospace, the joint venture between DRDO and NPOM, Russia, has been continuously upgrading the powerful, highly versatile BrahMos to increase its effectiveness and lethality against sea and land targets.
11-Jan-22	Army	MPATGM	DRDO successfully flight-tested the final deliverable configuration of Man Portable Anti-Tank Guided Missile (MPATGM). The present test was to prove the consistent performance for the minimum range. The missile performance has been proven for the maximum range in earlier test trials.
22-Dec-21	Army	Surface to Surface missile (Pralay)	DRDO successfully conducted flight-test of indigenously developed surface-to-surface missile 'Pralay'. The missile is powered with solid propellant rocket motor and many new technologies. The missile has a range of 150-500km and can be launched from a mobile launcher. The missile guidance system includes state-of-the-art navigation system and integrated avionics.
13-Dec-21	Navy	Supersonic Missile Assisted release of Torpedo	DRDO-developed supersonic missile-assisted torpedo system was successfully launched from Wheeler Island in Odisha. The system has been designed to enhance anti-submarine warfare capability far beyond the conventional range of the torpedo.
11-Dec-21	Air Force	Stand-off Anti-Tank Missile	DRDO and Indian Air Force (IAF) flight-tested the indigenously designed and developed helicopter-launched Stand-off Anti-tank (SANT) missile from Pokhran ranges. The missile is equipped with a MMW seeker which provides high precision strike capability from a safe distance. The weapon can neutralise targets in a range up to 10km.
7-Dec-21	Navy	Short Range Surface to Air Missile	Vertical Launch Short Range Surface-to-Air Missile was successfully flight-tested by DRDO from Integrated Test Range, Chandipur, off the coast of Odisha. The first trial was conducted on 22 Feb 2021, and this is confirmatory trial to prove the consistent performance of the configuration and integrated operation.
27-Sep-21	Army	Agni-5 Ballistic Missile	A successful launch of the Surface-to-Surface Ballistic Missile, Agni-5 was carried out from APJ Abdul Kalam Island, Odisha. The missile, which uses a three-stage solid fuelled engine, is capable of striking targets at ranges up to 5,000km with a very high degree of accuracy.
1-Sep-21	Air Force	Chaff material and chaff cartridge-118/l	DRDO has developed Advanced Chaff Technology to safeguard fighter aircraft of the Indian Air Force (IAF) against hostile radar threats. The IAF has started the process of induction of this technology after completion of successful user trials.
9-Sep-21	Air Force	MRSAM	First deliverable Firing Unit of Medium Range Surface-to Air Missile (MRSAM) System was handed over to Indian Air Force (IAF) at Air Force Station, Jaisalmer in Rajasthan on 9 Sep 2021.
21-Jul-21	Army	MPATGM	In a major boost towards strengthening of Indian Army, DRDO successfully flight-tested indigenously developed low weight, fire-and-forget Man-Portable Anti-tank Guided Missile (MPATGM). The missile was launched from a man-portable launcher integrated with a thermal site and the target was mimicking a tank.
21-Jul-21	Army	Akash-NG (New Generation)	DRDO successfully flight-tested the New Generation Akash Missile (Akash-NG), a surface-to-air missile from Integrated Test Range (ITR) off the coast of Odisha. The flight trial was conducted from a land-based platform with all weapon system elements such as multifunction radar, command, control & communication system and launcher participating in deployment configuration.
21-Jun-21	Army	Agni P Ballistic missile	DRDO successfully flight-tested a New Generation Nuclear Capable Ballistic Missile Agni P.
28-May-21	Army	Agni P Ballistic missile	DRDO successfully flight-tested a New Generation Nuclear Capable Ballistic Missile Agni P.
30-Apr-21	Navy	SRCR, MRCR, LRCR	DRDO has developed an Advanced Chaff Technology to safeguard the naval ships against enemy missile attack. Defence Laboratory Jodhpur (DLJ) has indigenously developed three variants, viz., Short Range Chaff Rocket (SRCR), Medium Range Chaff Rocket (MRCR) and Long-Range Chaff Rocket (LRCR) of this critical technology meeting Indian Navy's qualitative requirements. The successful development of Advanced Chaff Technology is another step towards Atmanirbhar Bharat. Indian Navy has successfully conducted trials of all three variants in the Arabian Sea and found the performance satisfactory
8-Mar-21	Navy	Light Weight Torpedo	Naval Science & Technological Laboratory (NSTL), Vishakapatnam, successfully conducted the maiden flight trial of deploying Indigenous Instrumented Light Weight Torpedo (TAL) with parachute system from Indian Navy's Aircraft IL-38SD

			off Visakhapatnam on 8 Mar 2021. This is the nation's first such trial for firing the indigenous lightweight torpedo from fixed-wing aircraft.
5-Mar-21	Air Force	Solid Fuel Ducted Ramjet technology	DRDO successfully carried out a flight demonstration based on Solid Fuel Ducted Ramjet (SFDR) technology from Integrated Test Range (ITR) Chandipur off-the-coast of Odisha on 5 Mar 2021. Successful demonstration of the technology has provided DRDO with a technological advantage, which will enable it to develop long range air-to-air missiles. At present, such technology is available only with a handful of countries.
22-Feb-21	Navy	VL-SRSAM missile	DRDO conducted two successful launches of Vertical Launch Shortrange Surface-to-Air Missile (VLSRSAM) on 22 Feb 2021 from a static vertical launcher from ITR, Chandipur. Indigenously designed and developed by DRDO.
19-Feb-21	Air Force	Helina Missile (Army version), Dhruvastra (Air Force Version)	Joint user trials for Helina (Army Version) and Dhruvastra (Air Force Version) Missile Systems have been carried out from Advanced Light Helicopter (ALH) platform in desert ranges. The missile systems have been designed and developed indigenously by Defence Research and Development Organisation (DRDO).
25-Jan-21	Air Force	Akash-NG (New Generation)	DRDO conducted the successful maiden launch of Akash-NG (New Generation) missile from Integrated Test Range off the coast of Odisha on 25 Jan 2021. Akash-NG is a new generation Surface-to-Air Missile meant for use by Indian Air Force with an aim of intercepting high manoeuvring low RCS aerial threats.
23-Dec-20	Army	MRSAM Army weapon	DRDO achieved a major milestone on 23 Dec 2020 with the maiden launch of Medium Range Surface to-Air Missile (MRSAM), Army version, from Integrated Test Range, Chandipur. The missile completely destroyed a high-speed unmanned aerial target, which was mimicking an aircraft, with a direct hit.
1-Dec-20		BrahMos Supersonic Cruise Missile	BrahMos Supersonic Cruise Missile in Anti-Ship mode was successfully test fired against a decommissioned ship. The test firing was carried out by Indian Navy.
13-Nov-20	Army	QRSAM	In yet another flight test, the Quick Reaction Surface-to-Air Missile (QRSAM) System tracked the target accurately and successfully neutralised the airborne target. The flight test, second in the series, was conducted from the Integrated Test Range, Chandipur, off the coast of Odisha.
22-Oct-20	Army	ATGM NAG	Final user trial of 3rd generation Anti-Tank Guided Missile (ATGM) NAG was carried out from Pokhran range. With this final user trial, NAG will enter the production phase. The missile will be produced by Defence PSU Bharat Dynamics Limited (BDL), whereas Ordnance Factory Medak will produce the NAMICA.
18-Oct-20	Navy	BrahMos Supersonic Cruise Missile	BrahMos, the supersonic cruise missile, was successfully test fired from Indian Navy's indigenously built stealth destroyer INS Chennai, hitting a target in the Arabian Sea.
9-Oct-20	Air Force	New Generation Anti-Radiation Missile	New generation Anti-Radiation Missile (RUDRAM) was successfully flight-tested onto a radiation target located on Wheeler Island off the coast of Odisha. The missile was launched from SU-30 MKI fighter aircraft. The RUDRAM is first indigenous anti-radiation missile for Indian Air Force (IAF), being developed by DRDO. The missile is integrated on SU-30 MKI fighter aircraft as the launch platform, having capability of varying ranges based on launch conditions.
5-Oct-20	Navy	Supersonic Missile Assisted release of Torpedo	Supersonic Missile Assisted Release of Torpedo (SMART) has been successfully flight-tested from Wheeler Island, off the coast of Odisha. SMART is a missile-assisted release of lightweight Anti-Submarine Torpedo System for Anti-Submarine Warfare (ASW) operations far beyond Torpedo range. This launch and demonstration is significant in establishing Anti-Submarine warfare capabilities. A number of DRDO laboratories including DRDL, RCI Hyderabad, ADRDE Agra, NSTL Visakhapatnam have developed the technologies required for SMART.
1-Oct-20	Army	Laser guided ATGM	The indigenously developed Laser Guided Anti-Tank Guided Missile (ATGM) was successfully test fired on 1 Oct 2020, defeating a target located at a longer range. The test was conducted from MBT Arjun at KK ranges (ACC&S) Ahmednagar in continuation of successful trial done on 22 Sep 2020.
30-Sep-20	Army	BrahMos surface-to-surface supersonic cruise missile	BrahMos surface-to-surface supersonic cruise missile featuring indigenous Booster and Airframe Section along with many other 'Made in India' sub-systems was successfully flight-tested for a designated range from ITR, Balasore in Odisha. Successful launch has paved the way for the serial production of the indigenous booster and other indigenous components of the powerful BrahMos Weapon System, realising Atmanirbhar Bharat pledge.
22-Sep-20		High-speed Expendable Aerial Target (HEAT)	High-speed Expendable Aerial Target (HEAT) was conducted by DRDO from the Interim Test Range, Balasore in Odisha. During the trials, two demonstrator vehicles were successfully test-flown. The vehicle can be used as a target for evaluation of various missile systems.

SOURCES: DRDO, INCRED RESEARCH, COMPANY REPORTS

## Seeking partnership for future technology and growth ➤

- Exploring avenues for partnership in pursuit of latest technologies: BDL has tied up with four-to-five global players in weapon market during the last one year.
  - **NAVAL group** is helping in the manufacture of **electrical heavyweight torpedoes** for Scorpene submarines.
  - In advanced stage of cooperation with **Thales group to manufacture and supply STARStreak missiles domestically and exports** of the system to existing and future STARStreak air defence customers, including the UK Armed Forces (as per a recent interview, it expects to firm up by the end of FY22F or by the beginning of 1QFY23F).
  - In negotiations with **Roxel to manufacture rocket motors in India** (contract getting finalized).
  - Have signed an offset agreement with MBDA for final assembly integration and testing of Asraam missile (maintenance and then integration) and Mistral missile.
  - Memorandum of Understanding (MoU) with STE (SPETSTECH NOEXPORT), Ukraine for joint development, transfer of technology (ToT) and joint manufacturing of various missile systems including optical sight as well as repair, refurbishment and life extension of existing missile stocks in India.

**Figure 5: Recent MOUs signed by BDL**

Date	Arrangement	Signatories	Product	Remarks
25-Jul-18	MoU	Thales group	STARStreak missiles	Manufacture and supply STARStreak missiles domestically and to other various countries.
25-Jul-18	MoU	Chemring	Chaffs and flares	Transfer of technology for Chaffs and Flares.
21-Sep-20	Tripartite MoU	Roxel	Rocket motors	Manufacture rocket motors in India (contract getting finalized).
06-Feb-21	Tripartite MoU	NAVAL group	Electrical heavy weight torpedoes	For manufacture of electrical heavy weight torpedoes for Scorpion submarines.
17-Aug-21	MoU	MBDA	Asraam missile	For offset manufacturing, maintenance, and integration for Asraam missile (maintenance earlier and then integration).

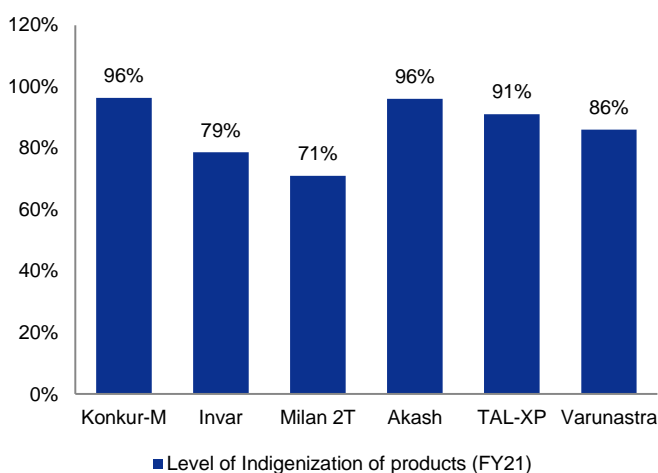
SOURCES: INCRED RESEARCH, COMPANY REPORTS

### Focus on localisation driven by government directive ➤

The government has taken several policy initiatives in past few years under the 'Make in India' programme and brought in reforms to encourage indigenous design, development and manufacture of defence equipment in the country, thereby reducing dependence on imports in coming years. Further, Defence Acquisition Procedure (DAP) 2020 and other policy initiatives have focused on boosting indigenous defence capability, reducing the reliance on imports. These initiatives include according priority to procurement of capital items from domestic sources under Defence Acquisition Procedure (DAP)-2020. Funds for Domestic Capital Procurement under Capital Acquisition Heads of Defence Services are also being earmarked from FY21. As per the recent Union Budget, the share of domestic manufacturers in defence procurement would be 68% in FY23F vs. 58% in FY22 which means overall allocation for domestic manufacturers would increase by 28% yoy to Rs1.03tr.

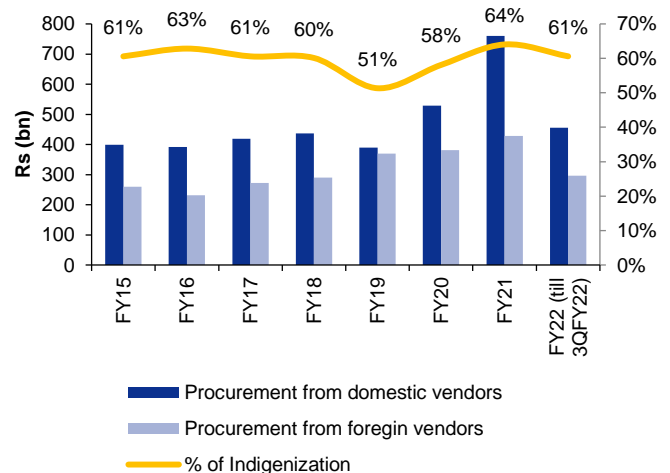
- In line with the government directive, the company has made an indigenization plan for next five years and has set a target of indigenization of 166 items. In FY21, 79 items were indigenized against the target of 72 items, and the value of imports was reduced to Rs1.45bn. BDL has uploaded 265 items imported by BDL on SRIJAN portal (provides access to the vendors to take up items that can be taken up for indigenization). These items, on completion of their indigenization, could save about ~Rs9.3bn in imports.
- Efforts towards increasing indigenization content in the manufacture of ATGMs, SAMs and torpedoes with the objective of the increasing self-reliance, reduction of imports. indigenization of products like Konkurs-M, Invar, Milan-2T, Akash, TAL-XP and Varunastra has been achieved up to 96.3%, 78.6%, 71%, 96%, 91% and 86%, respectively.

**Figure 6: Localized content for BDL's various platforms**



SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 7: India's defence procurement from domestic vendors hovers around 58-65% (barring FY19) in last few years, which is set at 68% in FY23F**



SOURCES: INCRED RESEARCH, COMPANY REPORTS

## Government push for exports provides a growth opportunity ➤

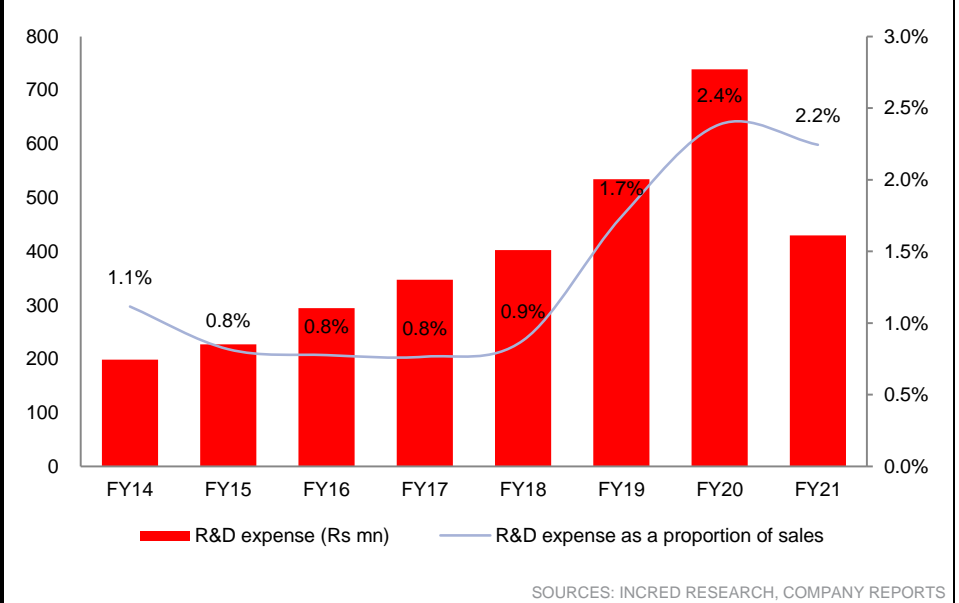
India's exports of defence items have surged from Rs19.4bn in FY15 to Rs84.2bn in FY21. The government has an ambitious target to achieve Rs350bn of exports by FY25F. A completely end-to-end online portal for receiving and processing export authorization permission has been developed. The applications submitted on this portal are digitally signed and the authorization also issued digitally, at a faster pace.

- **Exports:** With the government's focus on increasing exports, Cabinet Committee on Security (CCS) clearance has been accorded for export of Akash Weapon System (AWS) to friendly foreign countries. BDL is getting leads for export of the missile from about nine countries.
- Apart from Akash and Light Weight Torpedo, the company is also offering Air-to-Air Missiles, Air-to-Surface Weapons, ATGMs, Heavy Weight Torpedoes and Counter Measure Systems for exports. The company is exporting Light Weight Torpedoes to a friendly country through a private channel partner.
- BDL witnessed export order inflow of Rs3.5bn in 9MFY22 vs. average export revenue of Rs1.5bn over FY20-21.

## R&D expenses historically were muted vs. other other large defence PSUs ➤

- **Research and development:** R&D expenses were down 42% yoy to Rs430m in FY21 (formed 2.2% of FY21 sales vs. 2.4% in FY20 vs. average 1% of sales over FY15-19). The company is engaged in new product development and upgradation of existing products to meet customer requirements and intends to increase R&D activity in association with DRDO and continues to have joint development programmes.
  - Amogha-111: BDL has designed and developed Amogha-111, a third generation, man-portable, fire-and-forget Anti-Tank Guided Missile. The project sanction order has been received from Indian Army and the D&E team of the company is working on prototypes to be offered to Indian Army for validation trials, as per the project sanction order.
  - The D&E team is also working on next-generation ATGM, which is currently at the initial stage of development. It is expected that a significant development of this ATGM will be achieved in FY22F.
  - Technical breakthroughs have been achieved for trials of ASTRA and NAG missiles.
  - Recent new products: Konkurs Launcher Test Equipment (KLTE) Ver.II, which is a micro-controller-based test equipment to check the serviceability of Konkurs Anti-Tank Guided Missile (ATGM) launchers. Konkurs Missile Test Equipment (KMTE) Ver.II is test equipment to check the serviceability of Konkurs-M ATGMs.
- Product launches: BDL launched two new products - Dishani (an expendable air-deployed ASW sonobuoy system) and Garudastra (advanced anti-submarine self-guided homing torpedo).

**Figure 8: Gradual increase in R&D expenses as a proportion of sales**



### Company to spend Rs3-4bn in capex over three years ➤

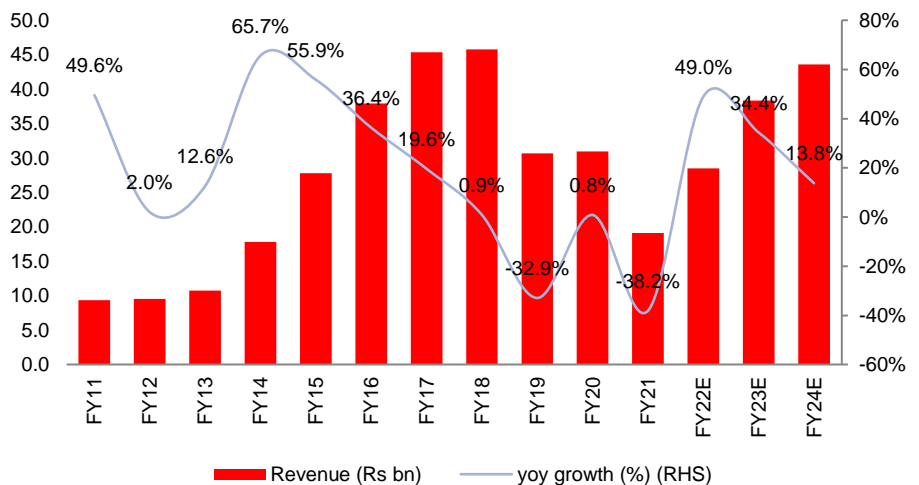
- Modernization and upgradation plans:
  - In FY21, the company spent an amount of Rs573m on capital expenditure (CAPEX) programme towards modernization of plant & machinery and other infrastructure development.
  - BDL inaugurated Surface-Mount Technology & High-Performance Computing facility, and laid foundation stones for setting up seeker facility centre, high temperature carbon composite manufacturing facility and warhead production facility, product launch of Konkurs missile test equipment (KMTE) & Konkurs launcher test equipment (KLTE) indigenously designed and developed by the company.
  - BDL would be incurring a capex of Rs3-4bn over three years. Capex is intended for setting up a manufacturing facility at a) Ibrahimpattam (near Hyderabad) to manufacture SAMs, b) at Amravati in Maharashtra to manufacture Very Short-Range Air Defence Missiles (VSHORADM), and c) for manufacturing propellant systems at Jhansi.

### Financials ➤

- Financial performance:
  - **Revenue:** We expect a revenue CAGR of 32% over FY21-24F (on a low base of FY21 revenue which was impacted by Covid on supply chain and operations). Most of the revenue is estimated from recent Konkur orders and Akash order from Airforce (already booked), and we do have estimates of ~19%/43% of revenue in FY23F/24F from new large orders yet to be booked, mainly for Akash-1S and Astra (excluding regular orders). We have not yet factored in any of the large export orders.
  - **Margins:** EBITDA margin in 9MFY22 recouped to 22.4% (-2.6% in 9MFY21) after a drop in FY21 margin due to negative operating leverage. While 3Q EBITDA margin was robust at 36%, we have estimated steady EBITDA margin of 22-23% over FY22F-24F. However, with cost-cutting measures and orders for highly indigenous Akash platform, margins could pose a positive surprise. Cost reduction of around Rs660m has been achieved in FY21 under cost review/reduction programme by way of indigenization efforts, change in process, development of alternative tools, scrap disposal, power &

- fuel, transport, testing of material, proof-firing expenditure, material handling, hiring of vehicles, publicity etc.
- **PAT:** We estimate PAT CAGR of 43% over FY21-24F. Higher customer advances from large order like Akash could boost other income, which has not been factored in our estimates.
- Working capital:
  - Net working capital on days of sales (ex- cash) improved significantly to 26 days of sales in FY21 vs. 108 days in FY20 led by a decline in debtors (billed and unbilled) as well as high payables. Trade receivables (billed and unbilled) declined by Rs12bn mainly on account of collections (collected Rs14.4bn in FY21 vs. Rs11.7bn in FY20), which offset higher inventories by Rs5.41 that could not be converted into sales due to the Covid pandemic. However, net working capital (ex-cash) stood at 187 days of sales in 1HFY22 vs. 156 days of sales in FY21, but improved from 230 days of sales in 1HFY21. Higher inventories and lower liabilities have impacted working capital as compared to FY21 levels. Increase in customer advance with large projects could substantially improve working capital cycle and cash flows.
- **Cash flow:** Cash flow from operations increased from Rs5bn in FY20 to Rs10.7bn in FY21, despite a 54% decline in PBT, aided by a sharp decline in working capital. Capex remained flat yoy at Rs566m in FY21. However, higher working capital requirement from a low base led to net cash from operations to be at -Rs3.1bn in 1HFY22 vs. Rs737m in 1HFY21.
- **Return ratios:** RoE sharply declined to 10% in FY21 from 23% in FY20, impacted by decline in sales and profitability. We expect RoE to claw back to 20-21% over FY23F-24F.

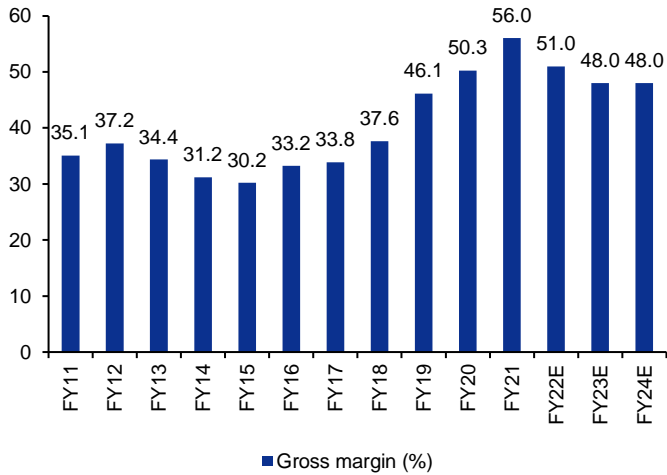
**Figure 9: Revenue is estimated to grow at a CAGR of 32% over FY21-24F**



SOURCES: INCRED RESEARCH, COMPANY REPORTS

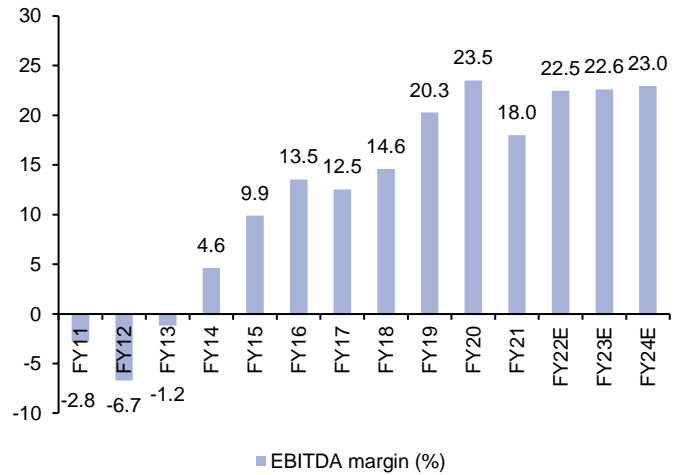


**Figure 10: Gross margin has seen a steady improvement in last few years...**



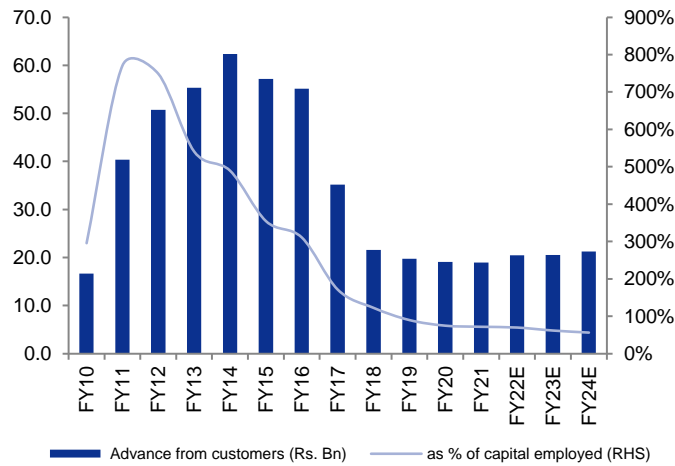
SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 11: ...which aided EBITDA margin apart from cost control and localization efforts**



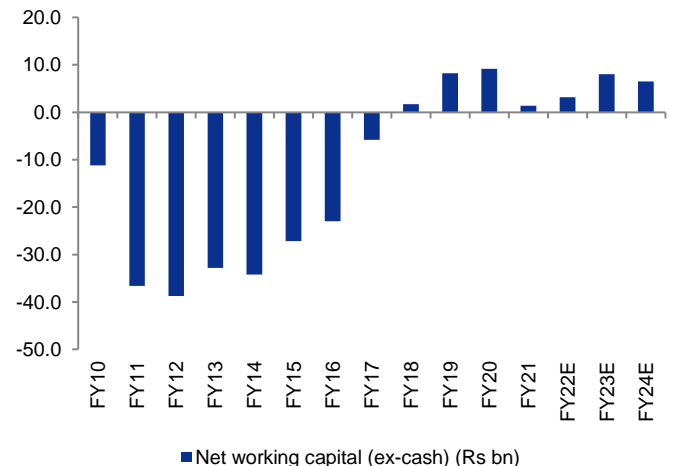
SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 12: Increase in customer advances with large prospective orders could alter working capital and cash flow**



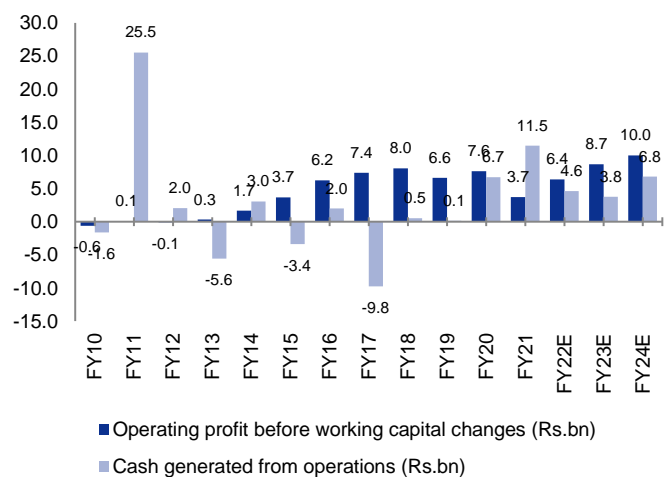
SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 13: Net working capital (ex-cash) improved in FY21 after a deterioration in FY19-20**



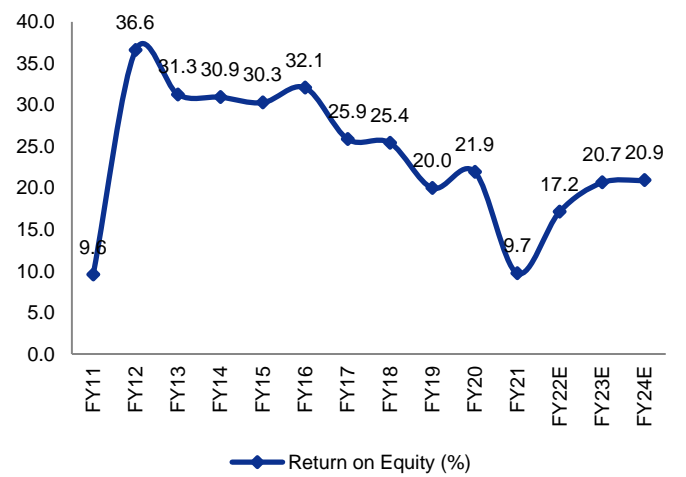
SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 14: Cash-flow trend**



SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 15: ROE is estimated to claw back to 20-21% over FY23-24F**



SOURCES: INCRED RESEARCH, COMPANY REPORTS

### 3QFY22 results highlights ►

- 3QFY22 sales for the quarter at Rs8bn (+75% yoy, +60% qoq) were 9% above our estimate of Rs7.3bn, which could have aided by lumpy execution of a large project (likely Akash SAM Air Force order).
- 3QFY22 EBITDA stood at Rs2.9bn (+7.2x yoy), above our estimated EBITDA of Rs1.08bn; EBITDA margin at 36% (+27.4% yoy, +22.9% qoq) was above our estimate of 14.7% aided by higher-than-estimated gross margin (+15.1% yoy, +967bp qoq), operating leverage and lower-than-estimated other expenses (+14% yoy). However, margins were volatile on a quarterly basis and 9MFY22 EBITDA margin stood at 22.4% vs. -2.6% in 9MFY21. Lumpy execution of indigenous order could have aided margins.
- Other income was Rs347m (-36% yoy) vs. our estimate of Rs273m. This indicates the cash balance has been stable.
- PBT is at Rs2.99bn (+335% yoy), which was 178% above our estimated PBT of Rs1.7bn.
- Tax rate for the quarter stood at 28.6% vs. our estimate of 25.7%.
- Accordingly, PAT stood at Rs2.1bn (+334% yoy), 167% above our estimated PAT of Rs 798m.

**Figure 16: Quarterly result analysis**

YE March (Rs m)	3QFY22	3QFY21	yoy % chg	2QFY22	qoq % chg	9MFY22	9MFY21	yoy % chg	3QFY22E	Actual vs. Our Estimate
<b>Total Revenue</b>	<b>8,039</b>	<b>4,593</b>	<b>75.0%</b>	<b>5,038</b>	<b>59.6%</b>	<b>14,363</b>	<b>7,732</b>	<b>85.8%</b>	<b>7,349</b>	<b>9.4%</b>
Net Raw Material consumed	2,926	2,366	23.6%	2,321	26.1%	5,212	2,680	94.5%	4,042	(27.6%)
Other Expenses	691	604	14.4%	642	7.7%	1,728	1,539	12.3%	882	(21.6%)
Personnel	1,527	1,225	24.6%	1,414	8.0%	4,204	3,711	13.3%	1,348	13.3%
<b>Total Expenditure</b>	<b>5,144</b>	<b>4,196</b>	<b>22.6%</b>	<b>4,377</b>	<b>17.5%</b>	<b>11,144</b>	<b>7,929</b>	<b>40.5%</b>	<b>6,272</b>	<b>(18.0%)</b>
<b>EBIDTA</b>	<b>2,895</b>	<b>397</b>	<b>628.6%</b>	<b>661</b>	<b>337.8%</b>	<b>3,220</b>	<b>-198</b>	<b>NA</b>	<b>1,077</b>	<b>168.8%</b>
Less: Depreciation	248	248	(0.2%)	237	4.4%	698	637	9.5%	266	
EBIT	2,647	149	1675.6%	424	524.5%	2,522	-835	NA	812	
Less: Interest paid	8	9	(4.3%)	9	(2.7%)	26	30	(13.1%)	10	
Non-operating Income	347	545	(36.4%)	203	71.1%	825	896	(7.9%)	273	
<b>Profit Before Tax</b>	<b>2,985</b>	<b>685</b>	<b>335.5%</b>	<b>618</b>	<b>383.3%</b>	<b>3,321</b>	<b>31</b>	<b>10536.0%</b>	<b>1,074</b>	<b>177.9%</b>
Profit Before Tax Excl. extra-ordinaries	2,985	685	335.5%	618	383.3%	3,321	31	10536.0%	1,074	
Less: Total Tax	853	194	340.6%	185	360.5%	966	57	1587.4%	276	
<b>Profit After Tax</b>	<b>2,133</b>	<b>492</b>	<b>333.5%</b>	<b>433</b>	<b>393.0%</b>	<b>2,356</b>	<b>-26</b>	<b>NA</b>	<b>798</b>	<b>167.2%</b>
<b>Reported PAT</b>	<b>2,133</b>	<b>492</b>	<b>333.5%</b>	<b>433</b>	<b>0.0%</b>	<b>2,356</b>	<b>-26</b>	<b>NA</b>	<b>798</b>	
<b>Profit After Tax Excl. extra-ordinaries</b>	<b>2,133</b>	<b>492</b>	<b>333.5%</b>	<b>433</b>	<b>393.0%</b>	<b>2,356</b>	<b>-26</b>	<b>NA</b>	<b>798</b>	
Diluted Shares Outstanding (mn)	183	183		183		183	183		183	
<b>Reported EPS-Diluted (Rs.)</b>	<b>12</b>	<b>2.68</b>	<b>333.5%</b>	<b>2.36</b>	<b>393.0%</b>	<b>12.85</b>	<b>-0.14</b>	<b>NA</b>	<b>4.35</b>	<b>167.2%</b>
<b>Proforma EPS Diluted (Rs.)</b>	<b>12</b>	<b>2.68</b>	<b>333.5%</b>	<b>2.36</b>	<b>393.0%</b>	<b>12.85</b>	<b>-0.14</b>	<b>NA</b>	<b>4.35</b>	<b>167.2%</b>

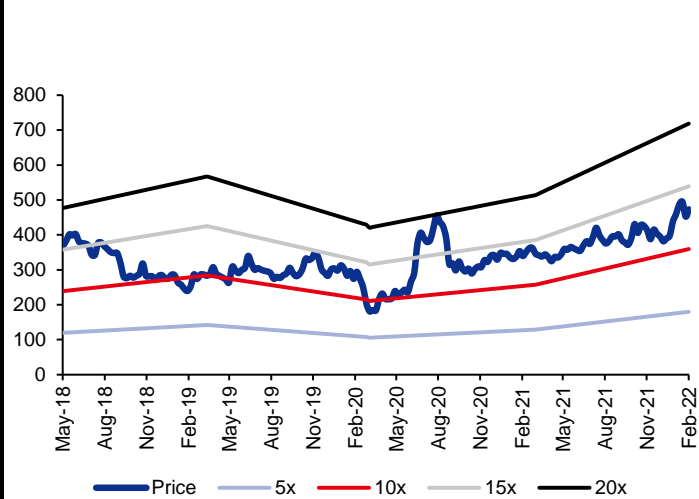
Margin Analysis			yoy bp chg		qoq bp chg			yoy bp chg	
Raw Material % of Total Revenue	50.5%	50.5%	2	47.2%	331	41.1%	41.4%	-28	50.5%
Other Expenses % of Total Revenue	7.2%	7.7%	-55	11.2%	-399	12.2%	9.9%	225	8.7%
Personnel % of Total Revenue	18.1%	19.5%	-145	19.3%	-119	24.4%	26.9%	-246	19.5%
<b>EBIDTA Margin</b>	<b>24.2%</b>	<b>22.3%</b>	<b>197</b>	<b>22.4%</b>	<b>187</b>	<b>22.3%</b>	<b>21.8%</b>	<b>49</b>	<b>21.3%</b>
EBIT Margin	17.9%	19.0%	-107	18.0%	-9	16.8%	17.6%	-84	17.5%
PBT Margin (%)	21.2%	19.7%	154	20.5%	74	20.3%	17.6%	278	20.1%
Proforma NPM	<b>15.9%</b>	<b>15.7%</b>	<b>19</b>	<b>15.3%</b>	<b>63</b>	<b>15.2%</b>	<b>13.5%</b>	<b>173</b>	<b>15.0%</b>
Effective Tax Rate (%)	25.1%	20.2%	492	25.4%	-37	25.3%	23.3%	197	25.5%

SOURCES: INCRED RESEARCH, COMPANY REPORTS

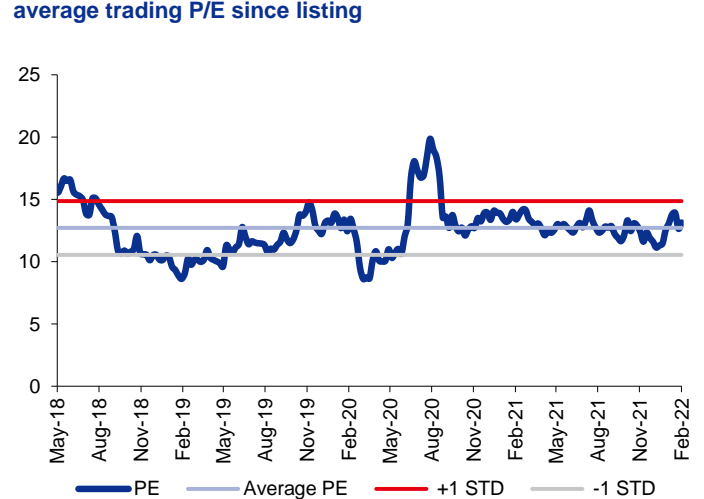
**Figure 17: Revision in our earnings estimates**

(Rs m)	Old estimates		New estimates		Change (%)	
	FY22F	FY23F	FY22F	FY23F	FY22F	FY23F
Revenue	29,914	42,429	28,512	38,328	-4.7	-9.7
EBITDA	5,285	8,408	6,405	8,665	21.2	3.1
Core PAT	3,844	6,135	4,856	6,555	26.3	6.8

SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 18: Bharat Dynamic's one-year forward P/E ratio**


SOURCES: INCRED RESEARCH, COMPANY REPORTS

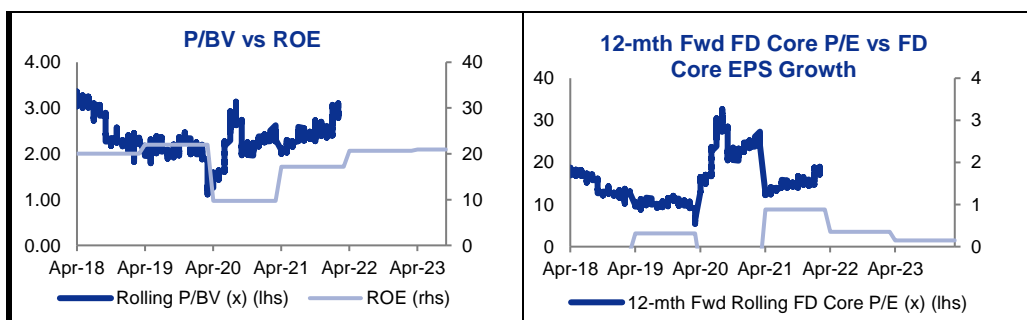
**Figure 19: Bharat Dynamic's one-year forward P/E is near its average trading P/E since listing**


SOURCES: INCRED RESEARCH, COMPANY REPORTS

**Figure 20: Sector comparison**

Company	Bloomberg Ticker	Recom.	Price Rs	TP Rs	Mkt cap (US\$ m)	P/E (x)			P/BV (x)			EV/EBITDA (x)			Dividend Yield (%)		
						FY22F	FY23F	FY24F	FY22F	FY23F	FY24F	FY22F	FY23F	FY24F	FY22F	FY23F	FY24F
ABB India	ABB IN	Reduce	2,078	1,620	6,241	102	76	62	11.0	9.9	8.7	69	53	42	0.3	0.3	0.3
Bharat Heavy Electricals	BHEL IN	Reduce	65	38	2,701	-42	57	28	0.8	0.8	0.8	-53	26	15	0.0	0.9	1.8
Cummins India	KKC IN	Add	922	1,000	3,466	32	27	23	5.3	4.8	4.4	29	23	20	1.8	2.0	2.1
Larsen & Toubro	LT IN	Add	1,801	2,160	35,604	29	24	20	3.2	2.9	2.6	20	17	15	2.0	1.2	1.2
Siemens India	SIEM IN	Hold	2,186	2,200	11,414	74	54	45	7.5	6.8	6.1	48	35	29	0.4	0.5	0.5
Thermax	TMX IN	Hold	1,763	1,610	2,846	56	39	35	5.6	5.1	4.6	37	26	23	0.5	0.6	0.7
Voltas	VOLT IN	Hold	1,179	1,265	5,324	57	43	36	7.1	6.3	5.6	47	34	29	0.5	0.6	0.7
KEC International	KECI IN	Add	458	520	1,599	19	14	11	2.7	2.3	2.0	11	8	7	0.9	1.4	1.7
Bharat Electronics	BHE IN	Add	207	235	6,744	21	19	17	4.1	3.7	3.3	15	14	12	2.2	2.4	2.6
Bharat Dynamics	BDL IN	Add	444	575	948	17	12	11	2.7	2.4	2.1	10	8	6	2.4	3.2	3.7
Hindustan Aeronautics	HNAL IN	Add	1,304	1,530	5,515	12	11	10	2.4	2.1	1.9	6	6	5	2.6	2.7	3.1

SOURCES: INCRED RESEARCH, COMPANY REPORTS

**BY THE NUMBERS**

**Profit & Loss**

(Rs mn)	Mar-20A	Mar-21A	Mar-22F	Mar-23F	Mar-24F
<b>Total Net Revenues</b>	<b>30,952</b>	<b>19,138</b>	<b>28,512</b>	<b>38,328</b>	<b>43,610</b>
<b>Gross Profit</b>	<b>15,555</b>	<b>10,726</b>	<b>14,541</b>	<b>18,398</b>	<b>20,933</b>
<b>Operating EBITDA</b>	<b>7,276</b>	<b>3,447</b>	<b>6,405</b>	<b>8,665</b>	<b>10,017</b>
Depreciation And Amortisation	(964)	(945)	(1,001)	(1,065)	(1,154)
<b>Operating EBIT</b>	<b>6,311</b>	<b>2,502</b>	<b>5,404</b>	<b>7,600</b>	<b>8,863</b>
Financial Income/(Expense)	(47)	(39)	(40)	(40)	(41)
Pretax Income/(Loss) from Assoc.					
Non-Operating Income/(Expense)	1,160	946	1,198	1,298	1,348
<b>Profit Before Tax (pre-EI)</b>	<b>7,425</b>	<b>3,409</b>	<b>6,562</b>	<b>8,858</b>	<b>10,169</b>
Exceptional Items					
<b>Pre-tax Profit</b>	<b>7,425</b>	<b>3,409</b>	<b>6,562</b>	<b>8,858</b>	<b>10,169</b>
Taxation	(2,076)	(831)	(1,706)	(2,303)	(2,644)
Exceptional Income - post-tax					
<b>Profit After Tax</b>	<b>5,349</b>	<b>2,578</b>	<b>4,856</b>	<b>6,555</b>	<b>7,525</b>
Minority Interests					
Preferred Dividends					
FX Gain/(Loss) - post tax					
Other Adjustments - post-tax					
<b>Net Profit</b>	<b>5,349</b>	<b>2,578</b>	<b>4,856</b>	<b>6,555</b>	<b>7,525</b>
Recurring Net Profit	5,349	2,578	4,856	6,555	7,525
<b>Fully Diluted Recurring Net Profit</b>	<b>5,349</b>	<b>2,578</b>	<b>4,856</b>	<b>6,555</b>	<b>7,525</b>

**Cash Flow**

(Rs mn)	Mar-20A	Mar-21A	Mar-22F	Mar-23F	Mar-24F
<b>EBITDA</b>	<b>7,276</b>	<b>3,447</b>	<b>6,405</b>	<b>8,665</b>	<b>10,017</b>
Cash Flow from Invt. & Assoc.	149	(38)	157	193	153
Change In Working Capital	(868)	7,756	(1,788)	(4,887)	(3,215)
(Incr)/Decr in Total Provisions	192	110			
Other Non-Cash (Income)/Expense	964	945	1,001	1,065	1,154
Other Operating Cashflow	(897)	(588)	(1,118)	(1,218)	(1,266)
Net Interest (Paid)/Received	(47)	(39)	(40)	(40)	(41)
Tax Paid	(1,727)	(778)	(1,706)	(2,303)	(2,644)
<b>Cashflow From Operations</b>	<b>5,042</b>	<b>10,815</b>	<b>2,912</b>	<b>1,475</b>	<b>4,157</b>
Capex	(569)	(566)	(800)	(1,000)	(1,500)
Disposals Of FAs/subsidiaries		1			
Acq. Of Subsidiaries/investments					
Other Investing Cashflow	237	608	1,198	1,298	1,348
<b>Cash Flow From Investing</b>	<b>(332)</b>	<b>43</b>	<b>398</b>	<b>298</b>	<b>(152)</b>
Debt Raised/(repaid)	(33)	(25)	(40)	(40)	(41)
Proceeds From Issue Of Shares					
Shares Repurchased					
Dividends Paid	(1,867)	(1,691)	(1,942)	(2,622)	(3,010)
Preferred Dividends					
Other Financing Cashflow	(9)				
<b>Cash Flow From Financing</b>	<b>(1,909)</b>	<b>(1,716)</b>	<b>(1,982)</b>	<b>(2,662)</b>	<b>(3,051)</b>
Total Cash Generated	2,802	9,141	1,327	(889)	954
<b>Free Cashflow To Equity</b>	<b>4,678</b>	<b>10,832</b>	<b>3,269</b>	<b>1,733</b>	<b>3,964</b>
<b>Free Cashflow To Firm</b>	<b>4,757</b>	<b>10,896</b>	<b>3,349</b>	<b>1,813</b>	<b>4,046</b>

SOURCES: INCRED RESEARCH, COMPANY REPORTS

## BY THE NUMBERS...cont'd

<b>Balance Sheet</b>					
<b>(Rs mn)</b>	<b>Mar-20A</b>	<b>Mar-21A</b>	<b>Mar-22F</b>	<b>Mar-23F</b>	<b>Mar-24F</b>
Total Cash And Equivalents	6,635	15,610	16,937	16,048	17,003
Total Debtors	3,384	3,227	4,687	6,301	7,169
Inventories	8,565	13,970	12,499	13,651	15,532
Total Other Current Assets	27,942	16,924	18,815	25,292	28,777
<b>Total Current Assets</b>	<b>46,526</b>	<b>49,730</b>	<b>52,937</b>	<b>61,292</b>	<b>68,482</b>
Fixed Assets	9,744	9,365	9,164	9,098	9,444
Total Investments	39	45	45	45	45
Intangible Assets					
Total Other Non-Current Assets	543	477	477	477	477
<b>Total Non-current Assets</b>	<b>10,326</b>	<b>9,887</b>	<b>9,686</b>	<b>9,621</b>	<b>9,967</b>
Short-term Debt					
Current Portion of Long-Term Debt					
Total Creditors	3,455	7,426	4,687	6,301	7,169
Other Current Liabilities	27,307	25,344	28,175	30,918	33,069
<b>Total Current Liabilities</b>	<b>30,762</b>	<b>32,770</b>	<b>32,862</b>	<b>37,219</b>	<b>40,238</b>
Total Long-term Debt	22				
Hybrid Debt - Debt Component					
Total Other Non-Current Liabilities					
<b>Total Non-current Liabilities</b>	<b>22</b>				
Total Provisions					
<b>Total Liabilities</b>	<b>30,783</b>	<b>32,770</b>	<b>32,862</b>	<b>37,219</b>	<b>40,238</b>
Shareholders Equity	26,068	26,847	29,761	33,694	38,210
Minority Interests					
<b>Total Equity</b>	<b>26,068</b>	<b>26,847</b>	<b>29,761</b>	<b>33,694</b>	<b>38,210</b>

<b>Key Ratios</b>					
	<b>Mar-20A</b>	<b>Mar-21A</b>	<b>Mar-22F</b>	<b>Mar-23F</b>	<b>Mar-24F</b>
Revenue Growth	0.8%	(38.2%)	49.0%	34.4%	13.8%
Operating EBITDA Growth	16.9%	(52.6%)	85.8%	35.3%	15.6%
Operating EBITDA Margin	23.5%	18.0%	22.5%	22.6%	23.0%
Net Cash Per Share (Rs)	36.08	85.17	92.41	87.56	92.77
BVPS (Rs)	142.23	146.48	162.38	183.84	208.48
Gross Interest Cover	135.55	63.94	135.10	190.00	216.16
Effective Tax Rate	28.0%	24.4%	26.0%	26.0%	26.0%
Net Dividend Payout Ratio	28.3%	58.8%	40.0%	40.0%	40.0%
Accounts Receivables Days	54.57	63.04	50.65	52.32	56.37
Inventory Days	298.81	488.92	345.75	239.45	234.86
Accounts Payables Days	(102.52)	(236.07)	(158.23)	(100.61)	(108.40)
ROIC (%)	32.5%	22.4%	42.3%	43.2%	41.9%
ROCE (%)	25.9%	9.5%	19.1%	24.0%	24.7%
Return On Average Assets	9.7%	4.5%	8.0%	9.9%	10.1%

<b>Key Drivers</b>					
	<b>Mar-20A</b>	<b>Mar-21A</b>	<b>Mar-22F</b>	<b>Mar-23F</b>	<b>Mar-24F</b>
Order inflows	32,500	28,030	115,000	39,000	85,000
yoy growth (%)	21	(14)	310	(66)	118
Sales	30,950	19,138	28,512	38,328	43,610
yoy growth (%)	1	(38)	49	34	14
Order backlog	74,130	83,860	170,348	171,019	212,409
yoy growth (%)	2	13	103	N/A	24
EBITDA margin(%)	24	18	22	23	23

SOURCES: INCRED RESEARCH, COMPANY REPORTS

---

## DISCLAIMER

---

This report (including the views and opinions expressed therein, and the information comprised therein) has been prepared for and is distributed by CGS-CIMB, Incred Research Services Private Limited (formerly known as by Earnest Innovation Partners Private Limited (hereinafter referred to as "IRSPL") pursuant to an arrangement between IRSPL and CGS-CIMB. IRSPL is not an affiliate of CGS-CIMB. IRSPL is held 76% by InCred Capital Wealth Portfolio Managers Private Limited and 24% by EIP Holdings Private Limited. IRSPL is registered with SEBI as a Research Analyst vide Registration No. INH000007793. Pursuant to a trademark agreement, IRSPL has adopted "InCred Equities" as its trademark for use in this report.

The term "IRSPL" shall, unless the context otherwise requires, mean IRSPL and its affiliates, subsidiaries and related companies. The term "CGS-CIMB" shall denote, where appropriate, the relevant entity distributing or disseminating the report in the particular jurisdiction referenced below, or, in every other case except as otherwise stated herein, CGS-CIMB Securities International Pte. Ltd. and its affiliates, subsidiaries and related corporations. This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation and remains subject to the "Restrictions on Distribution" set out below. If your status has changed or the distribution restrictions set out below impact your ability to receive this report please contact your usual CGS-CIMB representative.

By accepting this report, the recipient hereof represents and warrants that he is entitled to receive such report in accordance with the restrictions set forth below and agrees to be bound by the limitations contained herein (including the "Restrictions on Distributions" set out below). Any failure to comply with these limitations may constitute a violation of law and limit our ability to provide reports to you.

This report is being supplied to you strictly on the basis that it will remain confidential. No part of this report may be (i) copied, photocopied, duplicated, stored or reproduced in any form by any means; or (ii) redistributed or passed on, directly or indirectly, to any other person in whole or in part, for any purpose without the prior written consent of IRSPL or CGS-CIMB.

The information contained in this report is prepared from data believed to be correct and reliable at the time of issue of this report.

Under the terms of the agreement between IRSPL and CGS-CIMB, IRSPL is not required to issue regular reports on the subject matter of this report at any frequency and it may cease to do so or change the periodicity of reports at any time. Neither IRSPL nor CGS-CIMB is under any obligation to update this report in the event of a material change to the information contained in this report. Neither IRSPL nor CGS-CIMB has any and will accept any, obligation to (i) check or ensure that the contents of this report remain current, reliable or relevant; (ii) ensure that the content of this report constitutes all the information a prospective investor may require; (iii) ensure the adequacy, accuracy, completeness, reliability or fairness of any views, opinions and information, and accordingly, IRSPL and its affiliates/group companies and/or CGS-CIMB, its affiliates and related persons including China Galaxy International Financial Holdings Limited ("CGIFHL") and CIMB Group Sdn. Bhd. ("CIMBG") and their respective related corporations (and their respective directors, associates, connected persons and/or employees) shall not be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof. In particular, CGS-CIMB disclaims all responsibility and liability for the views and opinions set out in this report.

Unless otherwise specified, this report is based upon reasonable sources. Such sources will, unless otherwise specified, for market data, be market data and prices available from the main stock exchange or market where the relevant security is listed, or, where appropriate, any other market. Information on the accounts and business of company(ies) will generally be based on published statements of the company(ies), information disseminated by regulatory information services, other publicly available information and information resulting from our research. Whilst every effort is made to ensure that statements of facts made in this report are accurate, all estimates, projections, forecasts, expressions of opinion and other subjective judgments contained in this report are based on assumptions considered to be reasonable as of the date of the document in which they are contained and must not be construed as a representation that the matters referred to therein will occur. Past performance is not a reliable indicator of future performance. The value of investments may go down as well as up and those investing may, depending on the investments in question, lose more than the initial investment. No report shall constitute an offer or an invitation by or on behalf of IRSPL and its affiliates/group companies and/or CGS-CIMB or their respective affiliates (including CGIFHL, CIMBG and their respective related corporations) or IRSPL and its affiliates/group companies, to any person to buy or sell any investments.

By IRSPL producing this report for CGS-CIMB, IRSPL has confirmed to CGS-CIMB that the opinions expressed are based on information it believes to be accurate and complete and obtained through reliable public or other non-confidential sources at the time made. (Information barriers and other arrangements may be established where necessary to prevent conflicts of interests arising. However, the analyst(s) may receive compensation that is based on his/their coverage of company(ies) in the performance of his/their duties or the performance of his/their recommendations. In reviewing this report, an investor should be aware that any or all of the foregoing, among other things, may give rise to real or potential conflicts of interest. Additional information is, subject to the duties of confidentiality, available on request.

The report is not a "prospectus" as defined under Indian Law, including the Companies Act, 2013, and is not, and shall not be, approved by, or filed or registered with, any Indian regulator, including any Registrar of Companies in India, SEBI, any Indian stock exchange, or the Reserve Bank of India. No offer, or invitation to offer, or solicitation of subscription with respect to any such securities listed or proposed to be listed in India is being made, or intended to be made, to the public, or to any member or section of the public in India, through or pursuant to this report.

The research analysts, strategists or economists principally responsible for the preparation of this research report are segregated from the other activities of IRSPL. Information barriers and other arrangements have been established, as required, to prevent any conflicts of interests.

IRSPL may have issued other reports (based on technical analysis, event specific, short term views etc.) that are inconsistent with and reach different conclusion from the information presented in this report.

Holding of Analysts/Relatives of Analysts, IRSPL and Associates of IRSPL in the covered securities, as on the date of publishing of this report

	Analyst/ Relative	Entity/ Associates
any financial interests in the company covered in this report (subject company) and nature of such financial interest	NO	NO
actual/beneficial ownership of 1% or more in securities of the subject company at the end of the month immediately preceding the date of publication of the research report or date of the public appearance;	NO	NO
any other material conflict of interest at the time of publication of the research report or at the time of public appearance	NO	NO
received any compensation from the subject company in the past twelve months for investment banking or merchant banking or brokerage services or investment advisory or depository or distribution from the subject company in the last twelve months for products/services other than investment banking or merchant banking or broker- age services or investment advisory or depository or distribution from the subject company in the last twelve months	NO	NO
managed or co-managed public offering of securities for the subject company in the last twelve months	NO	NO
received any compensation or other benefits from the subject company or third party in connection with the research report	NO	NO
served as an officer, director or employee of the subject company	NO	NO
been engaged in market making activity for the subject company	NO	NO

#### Analyst declaration

- The analyst responsible for the production of this report hereby certifies that the views expressed herein accurately and exclusively reflect his or her personal views and opinions about any and all of the issuers or securities analysed in this report and were prepared independently and autonomously in an unbiased manner.
- No part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations(s) or view(s) in this report or based any specific investment banking transaction.
- The analyst(s) has(have) not had any serious disciplinary action taken against him/her(them).
- The analyst, strategist, or economist does not have any material conflict of interest at the time of publication of this report.
- The analyst(s) has(have) received compensation based upon various factors, including quality, accuracy and value of research, overall firm performance, client feedback and competitive factors.

#### CGS-CIMB DISCLOSURES

Country	CGS-CIMB Entity	Regulated by
Hong Kong	CGS-CIMB Securities (Hong Kong) Limited	Securities and Futures Commission Hong Kong
India	CGS-CIMB Securities (India) Private Limited	Securities and Exchange Board of India (SEBI)
Indonesia	PT CGS-CIMB Sekuritas Indonesia	Financial Services Authority of Indonesia
Malaysia	CGS-CIMB Securities Sdn. Bhd.	Securities Commission Malaysia
Singapore	CGS-CIMB Securities (Singapore) Pte. Ltd.	Monetary Authority of Singapore
South Korea	CGS-CIMB Securities (Hong Kong) Limited, Korea Branch	Financial Services Commission and Financial Supervisory Service
Thailand	CGS-CIMB Securities (Thailand) Co. Ltd.	Securities and Exchange Commission Thailand

#### Other Significant Financial Interests:

As of the end of 31st January 2022 immediately preceding the date of this report CGS-CIMB does not:

- have a proprietary position in the securities (which may include but not be limited to shares, warrants, call warrants and/or any other derivatives) in the company(ies) covered in this report except for the following:
  - Nil
- act as market maker or have assumed an underwriting commitment in securities of the company(ies) covered in this report except for the following:
  - Nil
- perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to the company(ies) covered in this report and/or solicit such investment, advisory or other services from the company(ies) covered in this report except for the following:
  - Nil

CGS-CIMB, its affiliates, related corporations (including CGIFHL, CIMBG and their respective related corporations) and/or their respective directors, associates, connected parties and/or employees and/or IRSPL and/or its affiliates and/or its Directors/employees may own or have positions in securities of the company(ies) covered in this report or any securities related thereto and may from time to time add to or dispose of, or may be materially interested in, any such securities.

CGS-CIMB, its affiliates and related corporations (including CGIFHL, CIMBG and their respective related corporations) and/or IRSPL and/or its affiliates and/or its Directors/employees may do and seek to do business with the company(ies) covered in this research report and may from time to time (a) buy/sell the securities covered in this report, from time to time and/or (b) act as market maker or have assumed an underwriting commitment in securities of such company(ies), and/or (c) may sell them to or buy them from customers on a principal basis and/or (d) may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) and/or (e) solicit such investment, advisory or other services from any entity mentioned in this report and/or (f) act as a lender/borrower to such company and may earn brokerage or other compensation. However, Analysts are forbidden to acquire, on their own account or hold securities (physical or uncertificated, including derivatives) of companies in respect of which they are compiling and producing financial recommendations or in the result of which they play a key part

This report does not purport to contain all the information that a prospective investor may require. Neither CGS-CIMB nor any of its affiliates (including CGIFHL, CIMBG and their related corporations) make any guarantee, representation or warranty, express or implied, as to the adequacy, accuracy, completeness, reliability or fairness of any such information and opinion contained in this report. Neither CGS-CIMB nor any of its affiliates nor their related persons (including CGIFHL, CIMBG and their related corporations) shall be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof.

This report is general in nature and has been prepared for information purposes only. It is intended for circulation amongst CGS-CIMB's and its affiliates' (including CGIFHL's, CIMBG's and their respective related corporations') clients generally and does not have regard to the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. The information and opinions in this report are not and should not be construed or considered as an offer, recommendation or solicitation to buy or sell the subject securities, related investments or other financial instruments or any derivative instrument, or any rights pertaining thereto.

Investors are advised to make their own independent evaluation of the information contained in this report, consider their own individual investment objectives, financial situation and particular needs and consult their own professional and financial advisers as to the legal, business, financial, tax and other aspects before participating in any transaction in respect of the securities of company(ies) covered in this report. The securities of such company(ies) may not be eligible for sale in all jurisdictions or to all categories of investors.

The report is not a "prospectus" as defined under Indian Law, including the Companies Act, 2013, and is not, and shall not be, approved by, or filed or registered with, any Indian regulator, including any Registrar of Companies in India, SEBI, any Indian stock exchange, or the Reserve Bank of India. No offer, or invitation to offer, or solicitation of subscription with respect to any such securities listed or proposed to be listed in India is being made, or intended to be made, to the public, or to any member or section of the public in India, through or pursuant to this report

#### Restrictions on Distributions

**Australia:** Despite anything in this report to the contrary, this research is prepared for and provided in Australia by CGS-CIMB Securities (Singapore) Pte. Ltd. and CGS-CIMB Securities (Hong Kong) Limited. This research is only available in Australia to persons who are "wholesale clients" (within the meaning of the Corporations Act 2001 (Cth) and is supplied solely for the use of such wholesale clients and shall not be distributed or passed on to any other person. You represent and warrant that if you are in Australia, you are a "wholesale client". This research is of a general nature only and has been prepared without taking into account the objectives, financial situation or needs of the individual recipient. CGS-CIMB Securities (Singapore) Pte. Ltd. and CGS-CIMB Securities (Hong Kong) Limited do not hold, and are not required to hold an Australian financial services license. CGS-CIMB Securities (Singapore) Pte. Ltd. and CGS-CIMB Securities (Hong Kong) Limited rely on "passporting" exemptions for entities appropriately licensed by the Monetary Authority of Singapore (under ASIC Class Order 03/1102) and the Securities and Futures Commission in Hong Kong (under ASIC Class Order 03/1103).

**Canada:** This report has not been prepared in accordance with the disclosure requirements of Dealer Member Rule 3400 – Research Restrictions and Disclosure Requirements of the Investment Industry Regulatory Organization of Canada. For any research report distributed by CIBC, further disclosures related to CIBC conflicts of interest can be found at <https://researchcentral.cibcwm.com>.

**China:** For the purpose of this report, the People's Republic of China ("PRC") does not include the Hong Kong Special Administrative Region, the Macau Special Administrative Region or Taiwan. The distributor of this report has not been approved or licensed by the China Securities Regulatory Commission or any other relevant regulatory authority or governmental agency in the PRC. This report contains only marketing information. The distribution of this report is not an offer to buy or sell to any person within or outside PRC or a solicitation to any person within or outside of PRC to buy or sell any instruments described herein. This report is being issued outside the PRC to a limited number of institutional investors and may not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose.

**France:** Only qualified investors within the meaning of French law shall have access to this report. This report shall not be considered as an offer to subscribe to, or used in connection with, any offer for subscription or sale or marketing or direct or indirect distribution of financial instruments and it is not intended as a solicitation for the purchase of any financial instrument.

**Germany:** This report is only directed at persons who are professional investors as defined in sec 31a(2) of the German Securities Trading Act (WpHG). This publication constitutes research of a non-binding nature on the market situation and the investment instruments cited here at the time of the publication of the information.

The current prices/yields in this issue are based upon closing prices from Bloomberg as of the day preceding publication. Please note that neither the German Federal Financial Supervisory Agency (BaFin), nor any other supervisory authority exercises any control over the content of this report.

**Hong Kong:** This report is prepared for and distributed in Hong Kong by CGS-CIMB Securities (Hong Kong) Limited ("CHK") which is licensed in Hong Kong by the Securities and Futures Commission for Type 1 (dealing in securities) and Type 4 (advising on securities) activities. Any investors wishing to purchase or otherwise deal in the securities covered in this report should contact the Head of Sales at CHK. The views and opinions in this report are our own as of the date hereof and are subject to change. If the Financial Services and Markets Act of the United Kingdom or the rules of the Financial Conduct Authority apply to a recipient, our obligations owed to such recipient therein are unaffected. CHK has no obligation to update its



opinion or the information in this report.

This publication is strictly confidential and is for private circulation only to clients of CHK.

**India:** This report is prepared by IRSPL for and distributed in India by IRSPL or CGS-CIMB Securities (India) Private Limited ("CGS-CIMB India"), as the case may be. CGS-CIMB India is a subsidiary of CGS-CIMB Securities International Pte. Ltd. which is in turn is a 50:50 joint venture company of CGIFHL and CIMBG. The details of the members of the group of companies of CGS-CIMB can be found at [www.cgs-cimb.com](http://www.cgs-cimb.com), CGIFHL at [www.chinastock.com.hk/en/ACG/ContactUs/index.aspx](http://www.chinastock.com.hk/en/ACG/ContactUs/index.aspx) and CIMBG at [www.cimb.com/en/who-we-are.html](http://www.cimb.com/en/who-we-are.html). CGS-CIMB India is registered with the National Stock Exchange of India Limited and BSE Limited as a trading and clearing member (under the Securities and Exchange Board of India (Stock Brokers and Sub-Brokers) Regulations, 1992). CGS-CIMB India is registered with SEBI (SEBI Registration Number: INZ000209135) as a Research Analyst (INH000000669) pursuant to the SEBI (Research Analysts) Regulations, 2014 ("Regulations").

By IRSPL producing this report for CGS-CIMB, IRSPL has confirmed to CGS-CIMB that the research analysts, strategists or economists principally responsible for the preparation of this report are segregated from the other activities of IRSPL and they have received compensation based upon various factors, including quality, accuracy and value of research, firm profitability or revenues, client feedback and competitive factors. Research analysts', strategists' or economists' compensation is not linked to investment banking or capital markets transactions performed or proposed to be performed by IRSPL, CGS-CIMB India or its affiliates.

This report does not take into account the particular investment objectives, financial situations, or needs of the recipients. It is not intended for and does not deal with prohibitions on investment due to law/jurisdiction issues etc. which may exist for certain persons/entities. Recipients should rely on their own investigations and take their own professional advice before investment.

CGS-CIMB India does not have actual / beneficial ownership of 1% or more securities of the subject company in this report, at the end of the month immediately preceding the date of publication of this report. However, since affiliates of CGS-CIMB India are engaged in the financial services business, they might have in their normal course of business financial interests or actual / beneficial ownership of one per cent or more in various companies including the subject company in this report.

CGS-CIMB India or its associates, may: (a) from time to time, have long or short position in, and buy or sell the securities of the subject company in this report; or (b) be engaged in any other transaction involving such securities and earn brokerage or other compensation or act as a market maker in the financial instruments of the subject company in this report or act as an advisor or lender/borrower to such company or may have any other potential conflict of interests with respect to any recommendation and other related information and opinions.

CGS-CIMB India and associates have not received any compensation for investment banking, merchant banking or brokerage services from the subject company mentioned in the report in the past 12 months.

CGS-CIMB India and associates have not managed or co-managed public offering of securities for the subject company mentioned in the report in the past 12 months.

**Indonesia:** This report is prepared for and distributed in Indonesia by PT CGS-CIMB Sekuritas Indonesia ("CGS-CIMB Indonesia"). The views and opinions in this report is prepared from data believed to be correct and reliable at the time of issue of this report and are subject to change. CGS-CIMB Indonesia has no obligation to update the opinion or the information in this report. This report is for private circulation only to clients of CGS-CIMB Indonesia. Neither this report nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable Indonesian capital market laws and regulations.

This report is not an offer of securities in Indonesia. The securities referred to in this report have not been registered with the Financial Services Authority (Otoritas Jasa Keuangan) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market law and regulations.

**Ireland:** CGS-CIMB is not an investment firm authorised in the Republic of Ireland and no part of this document should be construed as CGS-CIMB acting as, or otherwise claiming or representing to be, an investment firm authorised in the Republic of Ireland.

**Malaysia:** This report is prepared for and distributed in Malaysia by CGS-CIMB Securities Sdn. Bhd. ("CGS-CIMB Malaysia") solely for the benefit of and for the exclusive use of our clients. Recipients of this report are to contact CGS-CIMB Malaysia, at Level 29, Menara Bumiputra-Commerce, No. 11, Jalan Raja Laut, 50350 Kuala Lumpur, Malaysia, in respect of any matters arising from or in connection with this report. CGS-CIMB Malaysia has no obligation to update, revise or reaffirm the opinion or the information in this report after the date of this report.

**New Zealand:** In New Zealand, this report is for distribution only to persons who are wholesale clients pursuant to section 5C of the Financial Advisers Act 2008.

**Singapore:** This report is prepared for and distributed in Singapore by CGS-CIMB Securities (Singapore) Pte Ltd ("CGS-CIMB Singapore"). CGS-CIMB Singapore is a capital markets services licensee under the Securities and Futures Act (Chapter 289). Accordingly, it is exempted from the requirement to hold a financial adviser's licence under the Financial Advisers Act, Cap 110 ("FAA") for advising on investment products, by issuing or promulgating research analyses or reports, whether in electronic, print or other form. CGS-CIMB Singapore is subject to the applicable rules under the FAA unless it is able to avail itself to any prescribed exemptions.

Recipients of this report are to contact CGS-CIMB Singapore, 10 Marina Boulevard, Marina Bay Financial Centre Tower 2, #09-01, Singapore 018983 in respect of any matters arising from, or in connection with this report. CGS-CIMB Singapore has no obligation to update the opinion or the information in this report. This publication is strictly confidential and is for private circulation only. If you have not been sent this report by CGS-CIMB Singapore directly, you may not rely, use or disclose to anyone else this report or its contents.

If the recipient of this report is not an accredited investor, expert investor or institutional investor, CGS-CIMB Singapore accepts legal responsibility for the contents of the report without any disclaimer limiting or otherwise curtailing such legal responsibility. If the recipient is an accredited investor, expert investor or institutional investor, the recipient is deemed to acknowledge that CGS-CIMB Singapore is exempt from certain requirements under the FAA and its attendant regulations, and as such, is exempt from complying with the following:

- (a) Section 25 of the FAA (obligation to disclose product information);
- (b) Section 27 of the FAA (duty not to make recommendation with respect to any investment product without having a reasonable basis where you may be reasonably expected to rely on the recommendation);

- (c) MAS Notice on Information to Clients and Product Information Disclosure [Notice No. FAA-N03];
- (d) MAS Notice on Recommendation on Investment Products [Notice No. FAA-N16];
- (e) Section 36 of the FAA (obligation on disclosure of interest in specified products); and
- (f) any other laws, regulations, notices, directive, guidelines, circulars and practice notes which relates to the above, to the extent permitted by applicable laws, as may be amended from time to time, and any other laws, regulations, notices, directive, guidelines, circulars, and practice notes as we may notify you from time to time. In addition, the recipient who is an accredited investor, expert investor or institutional investor acknowledges that as CGS-CIMB Singapore is exempt from Section 27 of the FAA, the recipient will also not be able to file a civil claim against CGS-CIMB Singapore for any loss or damage arising from the recipient's reliance on any recommendation made by CGS-CIMB Singapore which would otherwise be a right that is available to the recipient under Section 27 of the FAA.

CGS-CIMB Singapore, its affiliates and related corporations, their directors, associates, connected parties and/or employees may own or have positions in specified products of the company(ies) covered in this report or any specified products related thereto and may from time to time add to or dispose of, or may be materially interested in, any such specified products. Further, CGS-CIMB Singapore, its affiliates and its related corporations do and seek to do business with the company(ies) covered in this report and may from time to time act as market maker or have assumed an underwriting commitment in specified products of such company(ies), may sell them to or buy them from customers on a principal basis and may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) as well as solicit such investment, advisory or other services from any entity mentioned in this report.

As of CGS-CIMB Singapore does not have a proprietary position in the recommended specified products in this report.

CGS-CIMB Singapore makes a market on the specified products.

CGS-CIMB Singapore does not make a market on other specified products mentioned in the report.

**South Korea:** This report is prepared for and distributed in South Korea by CGS-CIMB Securities (Hong Kong) Limited, Korea Branch ("CGS-CIMB Korea") which is licensed as a cash equity broker, and regulated by the Financial Services Commission and Financial Supervisory Service of Korea. In South Korea, this report is for distribution only to professional investors under Article 9(5) of the Financial Investment Services and Capital Market Act of Korea ("FSCMA").

**Spain:** This document is a research report and it is addressed to institutional investors only. The research report is of a general nature and not personalised and does not constitute investment advice so, as the case may be, the recipient must seek proper advice before adopting any investment decision. This document does not constitute a public offering of securities.

CGS-CIMB is not registered with the Spanish Comision Nacional del Mercado de Valores to provide investment services.

**Sweden:** This report contains only marketing information and has not been approved by the Swedish Financial Supervisory Authority. The distribution of this report is not an offer to sell to any person in Sweden or a solicitation to any person in Sweden to buy any instruments described herein and may not be forwarded to the public in Sweden.

**Switzerland:** This report has not been prepared in accordance with the recognized self-regulatory minimal standards for research reports of banks issued by the Swiss Bankers' Association (Directives on the Independence of Financial Research).

**Thailand:** This report is prepared for and distributed in Thailand by CGS-CIMB Securities (Thailand) Co. Ltd. ("CGS-CIMB Thailand") based upon sources believed to be reliable (but their accuracy, completeness or correctness is not guaranteed). The statements or expressions of opinion herein were arrived at after due and careful consideration for use as information for investment. Such opinions are subject to change without notice and CGS-CIMB Thailand has no obligation to update its opinion or the information in this report.

CGS-CIMB Thailand may act or acts as Market Maker, and issuer and offerer of Derivative Warrants and Structured Note which may have the following securities as its underlying securities. Investors should carefully read and study the details of the derivative warrants in the prospectus before making investment decisions.

AAV, ACE, ADVANC, AEONTS, AMATA, AOT, AP, BAM, BANPU, BBL, BCH, BCP, BCPG, BDMS, BEC, BEM, BGRIM, BH, BJC, BTS, CBG, CENTEL, CHG, CK, CKP, COM7, CPALL, CPF, CPN, CRC, DELTA, DOHOME, DTAC, EA, EGCO, ESSO, GLOBAL, GPSC, GULF, GUNKUL, HANA, HMPRO, ICHI, INTUCH, IRPC, IVL, JAS, JMART, JMT, KBANK, KCE, KKP, KTB, KTC, LH, MAJOR, MEGA, MINT, MTC, NRF, OR, ORI, OSP, PLANB, PRM, PSL, PTG, PTL, PTT, PTTEP, PTTGC, QH, RATCH, RBF, RS, SAWAD, SCB, SCC, SCGP, SINGER, SPALI, SPRC, STA, STEC, STGT, SUPER, SYNEX, TASCO, TCAP, THANI, TISCO, TKN, TOP, TQM, TRUE, TTB, TU, TVO, VGI, WHA

**Corporate Governance Report:**

The disclosure of the survey result of the Thai Institute of Directors Association ("IOD") regarding corporate governance is made pursuant to the policy of the Office of the Securities and Exchange Commission. The survey of the IOD is based on the information of a company listed on the Stock Exchange of Thailand and the Market for Alternative Investment disclosed to the public and able to be accessed by a general public investor. The result, therefore, is from the perspective of a third party. It is not an evaluation of operation and is not based on inside information.

The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey result may be changed after that date. CGS-CIMB Thailand does not confirm nor certify the accuracy of such survey result.

<b>Score Range:</b>	90 - 100	80 – 89	70 - 79	Below 70	No Survey Result
<b>Description:</b>	Excellent	Very Good	Good	N/A	N/A

**United Arab Emirates:** The distributor of this report has not been approved or licensed by the UAE Central Bank or any other relevant licensing authorities or governmental agencies in the United Arab Emirates. This report is strictly private and confidential and has not been reviewed by, deposited or registered with UAE Central Bank or any other licensing authority or governmental agencies in the United Arab Emirates. This report is being issued outside the United Arab Emirates to a limited number of institutional investors and must not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose. Further, the information contained in this report is not intended to lead to the sale of investments under any subscription agreement or the conclusion of any other contract of whatsoever nature within the territory of the United Arab Emirates.

**United Kingdom and European Economic Area (EEA):** In the United Kingdom and European Economic Area, this material is prepared for and being distributed by CGS-CIMB Securities (UK) Limited ("CGS-CIMB UK"). CGS-CIMB UK is authorized and regulated by the Financial Conduct Authority and its registered office is at 27 Knightsbridge, London, SW1X7YB. The material distributed by CGS-CIMB UK has been prepared in accordance with CGS-CIMB's policies for managing conflicts of interest arising as a result of publication and distribution of this material. This material is for distribution only to, and is solely directed at, selected persons on the basis that those persons: (a) are eligible counterparties and professional clients of CGS-CIMB UK; (b) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"), (c) fall within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc") of the Order; (d) are outside the United Kingdom subject to relevant regulation in each jurisdiction, material (all such persons together being referred to as "relevant persons"). This material is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this material relates is available only to relevant persons and will be engaged in only with relevant persons.

This material is categorised as non-independent for the purposes of CGS-CIMB UK and therefore does not provide an impartial or objective assessment of the subject matter and does not constitute independent research. Consequently, this material has not been prepared in accordance with legal requirements designed to promote the independence of research and will not be subject to any prohibition on dealing ahead of the dissemination of research. Therefore, this material is considered a marketing communication.

**United States:** This report is prepared for and distributed in the United States of America by CGS-CIMB Securities (USA) Inc, a U.S. registered broker-dealer and an affiliate of CGS-CIMB Securities Sdn. Bhd., CGS-CIMB Securities (Singapore) Pte Ltd, PT CGS-CIMB Sekuritas Indonesia, CGS-CIMB Securities (Thailand) Co. Ltd, CGS-CIMB Securities (Hong Kong) Limited and CGS-CIMB Securities (India) Private Limited, and is distributed solely to persons who qualify as "U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934. This communication is only for Institutional Investors whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major Institutional Investor must not rely on this communication. The delivery of this report to any person in the United States of America is not a recommendation to effect any transactions in the securities discussed herein, or an endorsement of any opinion expressed herein. CGS-CIMB Securities (USA) Inc, is a FINRA/SIPC member and takes responsibility for the content of this report. For further information or to place an order in any of the above-mentioned securities please contact a registered representative of CGS-CIMB Securities (USA) Inc.

CGS-CIMB Securities (USA) Inc. has managed or co-managed a public offering of securities in the past 12 months.

CGS-CIMB Securities (USA) Inc. has not managed or co-managed a public offering of any of the securities mentioned in the past 12 months.

CGS-CIMB Securities (USA) Inc. has received compensation for investment banking services in the past 12 months.

CGS-CIMB Securities (USA) Inc. has not received compensation for investment banking services from any of the company mentioned in the past 12 months.

CGS-CIMB Securities (USA) Inc. expects to receive or intend to seek compensation for investment banking services within the next 3 months.

CGS-CIMB Securities (USA) Inc. neither expects to receive nor intends to seek compensation for investment banking services from any of the company mentioned within the next 3 months.

As of the end of the month immediately preceding the date of publication of this report, CGS-CIMB Securities (USA) Inc. beneficially owns 1% or more of any class of common equity securities.

**United States Third-Party Disclaimer:** If this report is distributed in the United States of America by Raymond James & Associates, Inc ("RJA"), this report is third-party research prepared for and distributed in the United States of America by RJA pursuant to an arrangement between RJA and CGS-CIMB Securities International Pte. Ltd. ("CGS-CIMB"). CGS-CIMB is not an affiliate of RJA. This report is distributed solely to persons who qualify as "U.S. Institutional Investors" or as "Major U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934, as amended. This communication is only for U.S. Institutional Investors or Major U.S. Institutional Investor whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major U.S. Institutional Investor must not rely on this communication. The delivery of this report to any person in the U.S. is not a recommendation to effect any transactions in the securities discussed herein, or an endorsement of any opinion expressed herein. If you are receiving this report in the U.S from RJA, a FINRA/SIPC member, it takes responsibility for the content of this report. For further information or to place an order in any of the above-mentioned securities please contact a registered representative of CGS-CIMB Securities (USA) Inc. or RJA. <https://raymondjames.com/InternationalEquityDisclosures>

**Other jurisdictions:** In any other jurisdictions, except if otherwise restricted by laws or regulations, this report is only for distribution to professional, institutional, or sophisticated investors as defined in the laws and regulations of such jurisdictions.

## Corporate Governance Report of Thai Listed Companies (CGR). CG Rating by the Thai Institute of Directors Association (Thai IOD) in 2021, Anti-Corruption 2021

**ADVANC** – Excellent, Certified, **AMATA** – Excellent, Certified, **ANAN** – Excellent, n/a, **AOT** – Excellent, n/a, **AP** – Excellent, Certified, **ASP** – Excellent, n/a, **AWC** – Excellent, Declared, **AU** – Good, n/a, **BAM** – Very Good, Certified, **BAY** – Excellent, Certified, **BBL** – Excellent, Certified, **BCH** – Very Good, Certified, **BCP** – Excellent, Certified, **BCPG** – Excellent, Certified, **BDMS** – Excellent, n/a, **BEAUTY** – Good, n/a, **BEM** – Excellent, n/a, **BH** – Good, n/a, **BJC** – Very Good, n/a, **BLA** – Very Good, Certified, **BTS** – Excellent, Certified, **CBG** – Very Good, n/a, **CGET** – n/a, n/a, **CENDEL** – Excellent, Certified, **CHAYO** – Very Good, n/a, **CHG** – Very Good, n/a, **CK** – Excellent, n/a, **COM7** – Excellent, Certified, **CPALL** – Excellent, Certified, **CPF** – Excellent, Certified, **CPN** – Excellent, Certified, **CPNREIT** – n/a, n/a, **CRC** – Excellent, Declared, **DELTA** – Excellent, Certified, **DDD** – Excellent, n/a, **DIF** – n/a, n/a, **DOHOME** – Very Good, Declared, **DREIT** – n/a, n/a, **DTAC** – Excellent, Certified, **ECL** – Excellent, Certified, **EGCO** – Excellent, Certified, **EPG** – Excellent, Certified, **ERW** – Very Good, Certified, **GFPT** – Excellent, Certified, **GGC** – Excellent, Certified, **GLOBAL** – Excellent, n/a, **HANA** – Excellent, Certified, **HMPRO** – Excellent, Certified, **HUMAN** – Good, n/a, **ICHI** – Excellent, Certified, **III** – Excellent, Declared, **INTUCH** – Excellent, Certified, **IRPC** – Excellent, Certified, **ITD** – Very Good, n/a, **IVL** – Excellent, Certified, **JASIF** – n/a, n/a, **JKN** – n/a, Certified, **JMT** – Very Good, n/a, **KBANK** – Excellent, Certified, **KCE** – Excellent, Certified, **KEX** – Very Good, Declared, **KKP** – Excellent, Certified, **KSL** – Excellent, Certified, **KTB** – Excellent, Certified, **KTC** – Excellent, Certified, **LH** – Excellent, n/a, **LPN** – Excellent, Certified, **M** – Very Good, Certified, **MAKRO** – Excellent, Certified, **MC** – Excellent, Certified, **MEGA** – Very Good, n/a, **MINT** – Excellent, Certified, **MTC** – Excellent, Certified, **NETBAY** – Very Good, n/a, **NRF** – Very Good, Declared, **OR** – Excellent, n/a, **ORI** – Excellent, Certified, **OSP** – Excellent, n/a, **PLANB** – Excellent, Certified, **PRINC** – Very Good, Certified, **PR9** – Excellent, Declared, **PSH** – Excellent, Certified, **PTT** – Excellent, Certified, **PTTEP** – Excellent, n/a, **PTTGC** – Excellent, Certified, **QH** – Excellent, Certified, **RAM** – n/a, n/a, **RBF** – Very Good, n/a, **RS** – Excellent, Declared, **RSP** – Good, n/a, **S** – Excellent, n/a, **SAK** – Very Good, Declared, **SAPPE** – Very Good, Certified, **SAWAD** – Very Good, n/a, **SCB** – Excellent, Certified, **SCC** – Excellent, Certified, **SCGP** – Excellent, Declared, **SECURE** – n/a, n/a, **SHR** – Excellent, n/a, **SIRI** – Excellent, Certified, **SPA** – Very Good, n/a, **SPALI** – Excellent, Certified, **SPRC** – Excellent, Certified, **SSP** – Good, Certified, **STEC** – Excellent, n/a, **SVI** – Excellent, Certified, **SYNEX** – Very Good, Certified, **TCAP** – Excellent, Certified, **THANI** – Excellent, Certified, **TIDLOR** – n/a, Certified, **TISCO** – Excellent, Certified, **TKN** – Very Good, n/a, **TOP** – Excellent, Certified, **TRUE** – Excellent, Certified, **TTB** – Excellent, Certified, **TU** – Excellent, Certified, **TVO** – Excellent, Certified, **VGI** – Excellent, Certified, **WHA** – Excellent, Certified, **WHART** – n/a, n/a, **WICE** – Excellent, Certified, **WORK** – Good, n/a.

- CG Score 2021 from Thai Institute of Directors Association (IOD)

- Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of August 5, 2021) are categorised into: companies that have declared their intention to join CAC, and companies certified by CAC.

### Recommendation Framework

#### Stock Ratings

Definition:

Add	The stock's total return is expected to exceed 10% over the next 12 months.
Hold	The stock's total return is expected to be between 0% and positive 10% over the next 12 months.
Reduce	The stock's total return is expected to fall below 0% or more over the next 12 months.

*The total expected return of a stock is defined as the sum of the: (i) percentage difference between the target price and the current price and (ii) the forward net dividend yields of the stock. Stock price targets have an investment horizon of 12 months.*

#### Sector Ratings

Definition:

Overweight	An Overweight rating means stocks in the sector have, on a market cap-weighted basis, a positive absolute recommendation.
Neutral	A Neutral rating means stocks in the sector have, on a market cap-weighted basis, a neutral absolute recommendation.
Underweight	An Underweight rating means stocks in the sector have, on a market cap-weighted basis, a negative absolute recommendation.

#### Country Ratings

Definition:

Overweight	An Overweight rating means investors should be positioned with an above-market weight in this country relative to benchmark.
Neutral	A Neutral rating means investors should be positioned with a neutral weight in this country relative to benchmark.
Underweight	An Underweight rating means investors should be positioned with a below-market weight in this country relative to benchmark.