

BSE SENSEX
62,182

S&P CNX
18,497

CMP: INR857 TP: INR985(+15%)

Buy



Stock Info

Bloomberg	BHFC IN
Equity Shares (m)	466
M.Cap.(INRb)/(USDb)	398.8 / 4.8
52-Week Range (INR)	896 / 596
1, 6, 12 Rel. Per (%)	-4/14/12
12M Avg Val (INR M)	1176
Free float (%)	54.8

Consol. Financials & Valuations (INR b)

Y/E Mar	2022	2023E	2024E
Sales	104.6	126.3	140.7
EBITDA (%)	18.9	17.6	20.5
Adj. PAT	10.1	9.9	15.6
EPS (INR)	21.7	21.2	33.5
EPS Gr. (%)	1047.8	-2.2	58.0
BV/Sh. (INR)	141.1	156.1	183.3

Ratios

Net D:E	0.9	0.8	0.6
RoE (%)	16.9	14.3	19.8
RoCE (%)	10.5	8.9	12.8
ROIC(%)	13.7	11.1	15.6
Payout (%)	23.2	29.6	18.7

Valuations

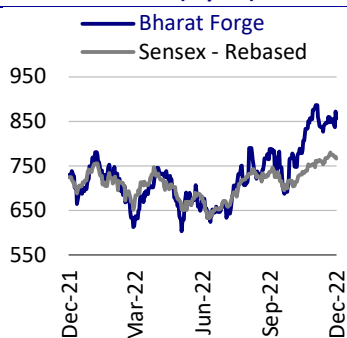
P/E (x)	39.5	40.4	25.6
P/BV (x)	6.1	5.5	4.7
EV/EBITDA (x)	22.7	20.3	15.3
Div. Yield (%)	0.6	0.7	0.7
FCF Yield (%)	-1.4	1.1	4.1

Shareholding pattern (%)

As On	Sep-22	Jun-22	Sep-21
Promoter	45.3	45.3	44.8
DII	24.7	24.5	13.5
FII	19.3	18.8	25.1
Others	10.7	11.4	16.7

FII Includes depository receipts

Stock Performance (1-year)



BFL 2.0: Moving from investing to harvesting phase

Targeting 12-15% revenue CAGR, EBITDA margins/RoCE of >20%/25%

Bharat Forge's Analyst Meet 2022 emphasized its preparedness of growing beyond its core business, with investment in capabilities and capacities in place. The senior management team gave insights on initiatives on new businesses (Industrials, light-weighting, E-mobility, Defence, and Aerospace) as well as focus areas for the existing businesses. While the core businesses have a stable outlook for CY23 in both India and exports, it is focusing on being the last man standing globally. With new businesses at their inflection points, the company is targeting a 12-15% consolidated revenue CAGR of 12-15% over FY22-30, EBITDA margins greater than 20% (19% in FY22) and RoCE of ~25% (v/s 20% core RoCE).

Moving from investing to harvesting phase

- BHFC has incubated several new businesses over the last 10 years, viz a) Defence (2012), b) EV components (2016-), c) Aerospace (2016-17), and d) light weighing (2018) and has incurred a capex of ~INR45b and ~INR11b in subsidiaries (consolidated capex of INR84.5b). However, revenue delta at the consolidated level was just ~INR42b.
- With a large part of investments already done, it is entering into the era of harvesting from the era of investing. These new businesses will expand addressable markets and offer good profitability.
- BHFC's Vision 2030 is to register its consolidated revenue CAGR at 12-15% over FY22-30, with EBITDA margins greater than 20%, and expand consolidated RoCEs by 500bp from FY22 levels of 20%. It plans to maintain its dividend payout of over 30%.

Core business CY23 outlook stable; focus on being last man standing

- CY23 outlook for its core businesses is stable based on inputs from its customers. It expects Industry volumes for US CVs to decline 4%, US PVs to grow 6.5%, EU CVs to be flat, and EU PVs to grow 9.3%. India CV volumes are expected to grow 7% and PVs to grow 6.5%. Non-auto business across domestic and exports is expected to be stable.
- The company is focused on being the last man standing globally, driven by product innovations and growth in new segments and technologies (expanding core plus ramping up in Industrial, EVs, and Aerospace). To improve its competitiveness, the company's focus is on maximizing asset utilization and increasing productivity while maintaining the leanest cost structure. The company's prime focus is on increasing its market share and benefitting from consolidation via M&A.
- It is securing more businesses as supply chain consolidates, with benefit coming in from realignment of global supply chain (China+1 and EU+1).
- EV risk in the core business till 2030 is limited, with 21% of exports (PV business) at risk. It is getting order wins in programs in ICE PVs running till mid-2030s. In CVs, it expects 75-80% of CV volumes to come from ICE till FY32.

Jinesh Gandhi – Research Analyst (jinesh@MotilalOswal.com)

Research Analyst: Amber Shukla (Amber.Shukla@motilaloswal.com) | Aniket Desai (Aniket.Desai@MotilalOswal.com)

Investors are advised to refer through important disclosures made at the last page of the Research Report.

Motilal Oswal research is available on www.motilaloswal.com/Institutional-Equities, Bloomberg, Thomson Reuters, Factset and S&P Capital.

JS Autocast: Adds capabilities and expands Industrial business

- The recent acquisition of JS Autocast adds casting capabilities in castings for the industrial segment, catering to wind energy, hydraulics, automotive, and power generation sectors. JS Autocast derives 50% of its revenues from exports and 100% of the products are machined in-house. It offers full-service capabilities and is global leader in small-sized wind turbine castings (55-60% share globally).
- Since the acquisition of JSA Autocast, BHFC has been adding new customers and new products over the past six months. It has added Oil & Gas as a sector.
- BHFC is seeing very strong business traction with opportunities opening up globally, especially post covid. With a young team and a technology focus, Mr Baba Kalyani believes JSA can be 10x in size by 2030, as JSA is where BHFC was two decades ago.
- The growth strategy for JS Autocast/Industrial business is based on a) growth from key existing customers, b) adding new customers, c) focus on hydraulics, earthmoving, and off-highway segment, d) investing in new technology, and f) expanding product portfolio across small and medium castings. In six months, 100% of power for castings will be from renewable energy, making it supplier of green castings.

Aluminum forging/die-casting to leverage on light-weighting opportunity

- BHFC is focused on leveraging light-weighting opportunity in autos through aluminum (Al), as it has developed strong capabilities in Al forging (EU & US) and die-casting (India). In Al forgings, it is focused on lower control arms, knuckles, and wheel carriers. In Al die-casting, it offers components for powertrain, chassis, EV motors, and battery housings.
- In Al forging, BFL's early investment has led to the development of a robust product portfolio of lightweight products positioned to capture meaningful market share, particularly with the premium auto OEMs.
- Its expanded capacity of 40k tons (and 9m pieces) is largely sold out and full benefit is expected to reflect in a couple of years. Considering the ramp-up phase at its recently commissioned US plant, it expects to struggle for a couple of quarters with benefits coming in from FY24. On full ramp-up, it expects the share of Al forgings to increase to 40-45% of overseas manufacturing revenues (from 25% in FY22).

Defence - The wait seems to be getting over

- It incubated defence businesses 10 years ago and has invested in honing skills at system manufacturing. A large part of its products in defence are without any JV partner.
- It has a four-pronged strategy for defence, viz a) artillery guns, b) protected vehicles, c) MRO and supplies, and d) unmanned vehicles.
- In artillery guns, it has eight platforms, for which, IP is with BHFC and testing is done. Its artillery systems are cost competitive globally. It expects orders for ATAGs before Mar-Apr'23, as it is a matter of process. It will be making 6 guns per month by Oct-23 and 12 by end-FY24. It has plans to make 20 guns, but cannot assemble them, and hence, it is making a small investment in a new plant.
- For Armoured vehicles, it already has orders from the government to supply KM4 to the India Army and UN. It has started supply for these vehicles.

- For Defence exports, it has substantial orders for exports for guns (USD155m), with deliveries starting from Apr-23. It sees a good potential in exports, as Garuda 105mm gun is currently being tested in the US.
- Additionally, it sees opportunities in MRO/AMC and supplies of ammunition. AMC for guns and armoured vehicles will be an annuity opportunity running over the life of the program. Also, ammunition is a very large part of defence procurement and it plans to supply empty shells (without explosives).

e-mobility: Building blocks in place in very large TAM

- In e-mobility component, it is focused on power electronics, traction/drivetrain, mechanical (light weighting), and energy storage (BMS, battery pack), across all the segments of autos.
- Over the last five years, BHFC has systematically invested in building its product portfolio in EV components through a mixture of partnerships/JVs (Refu Drive, Harbinger Motors), acquisitions (Teva Motors, Tork Motors), and in-house development (US/UK tech centre, CLWT India). Its recent JV ElectroForge (with Harbinger Motors, US) plugs the gap in its portfolio by bringing in high power traction motor-controller.
- Over the next 12-18 months, it would be launching all its products, with power & control products in 1HCY23, Traction drives, EDU & e-axles in FY24 and CV re-powering (EV retro-fitment in ICV). Tork Motorcycle is gradually scaling up and has appointed dealers in three cities (beyond Pune), as it received FAME-2 certification in Oct-22. It has bookings of ~4.6k units.
- The company will have three plants catering to EV components starting from 1QCY23 viz a) e-2W/3W kits for e-motors, battery pack & bike assembly, b) CV re-powering with capacity of 1,000 trucks per annum, and c) electronic components such as DC-DC and VCU with annual initial capacity of 150k units. Two of these three plants are eligible for PLI incentives.
- It also plans to work on future products (beyond 2025) with focus on a) H2 Fuel cell-based powertrain solutions, b) advanced electric chassis, c) H2 fuel cell membranes, d) advanced e-axle, e) carbon fibre composites, f) sodium ion battery, and g) hydrogen cylinder.

Valuation & view

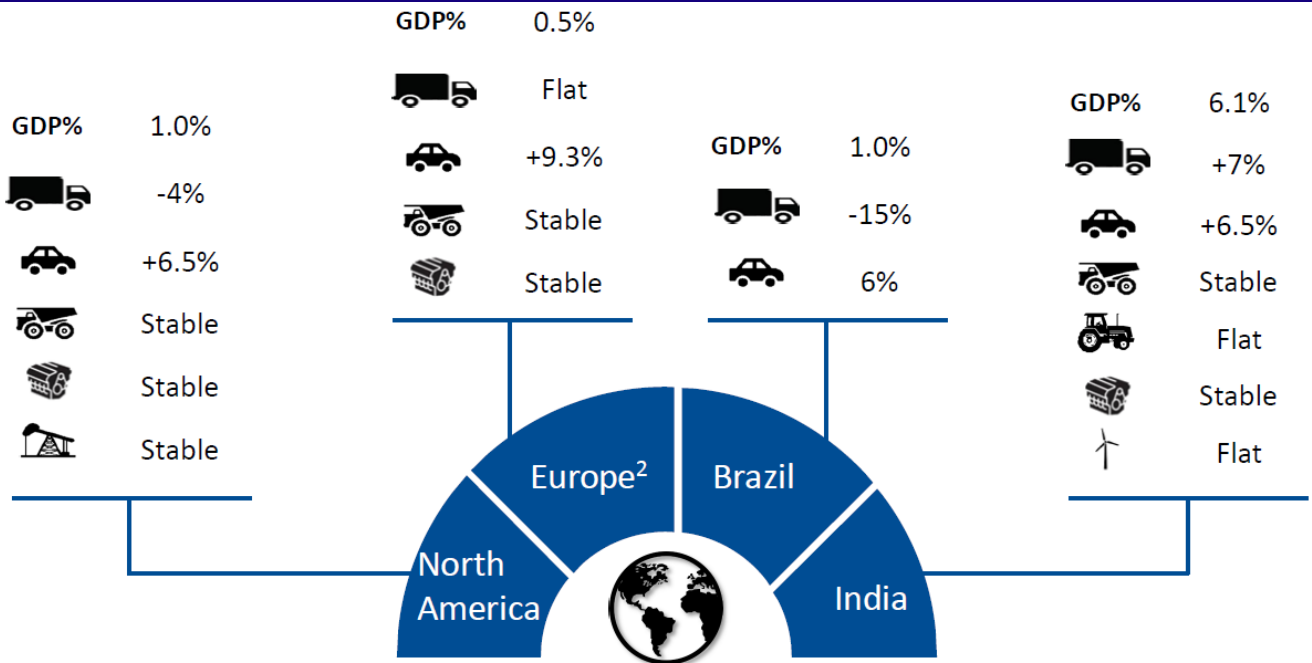
- While its core business is seeing cyclical recovery, underlying macro-environment in US/EU is weakening.
- However, these new businesses incubated in the last 5-10 years are at their inflection points and could more than dilute for any weakness expected in its core businesses. Of these new businesses, we expect industrials and aluminum business to see a sharp scale-up over the next couple of years. Defence business is fully ready for take off and is waiting for orders to come in. E-mobility business offers a large opportunity and has building blocks in place, but the competitive landscape is yet to evolve.
- We estimate a consolidated revenue/EBITDA/PAT CAGR of 14%/20%/24%, respectively, over FY22-25E. The stock trades at 25.6x/20.7x FY24E/FY25E consolidated EPS. We reiterate our Buy rating, with a TP of INR985 (at 25x Dec'24E EPS).

Exhibit 1: BFL 2.0 – Building on core



Source: Company, MOFSL

Exhibit 2: Market outlook for key markets of BHFC

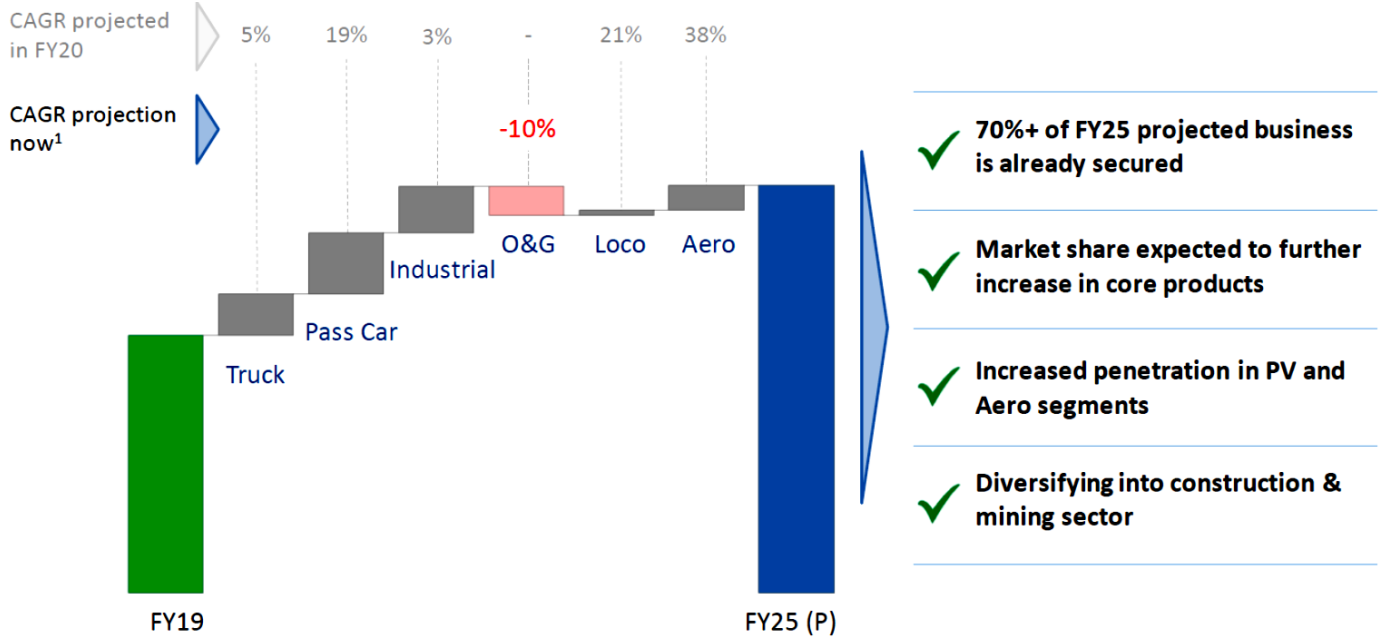


1. Sources: Reports by IMF ACT, AFS, ACEA, SIAM and internal projections basis discussions with customers
 2. Europe numbers are expected to have significant uncertainty

FY23 Vs FY22 for India
 CY23 Vs CY22 for Rest of world

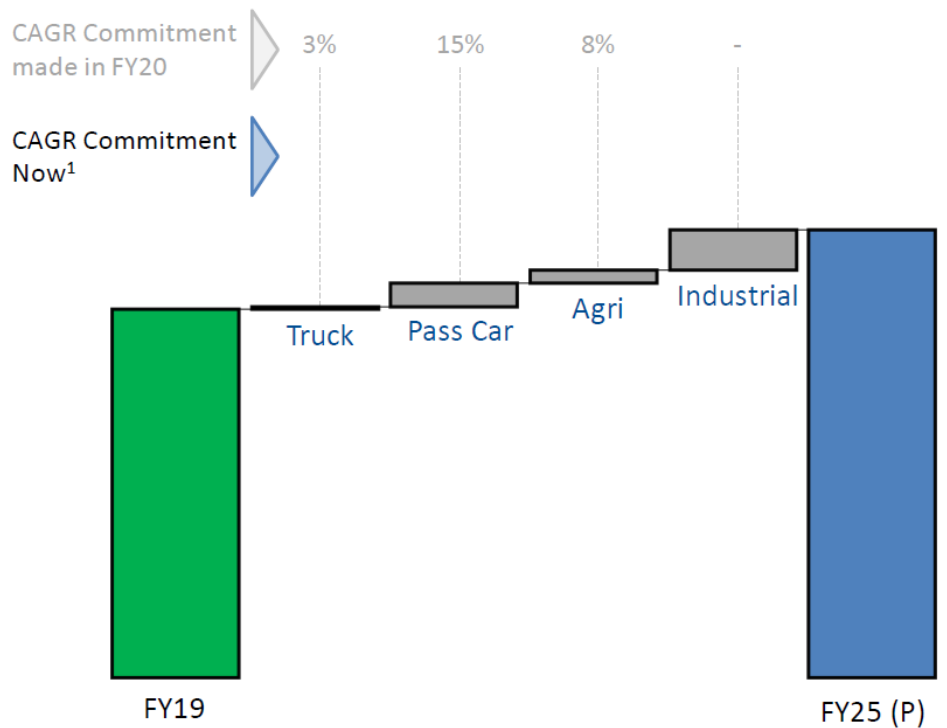
Source: Company, MOFSL

Exhibit 3: Revised build-up of BHFC's export business



Source: Company, MOFSL

Exhibit 4: Revised build-up of BHFC's domestic business



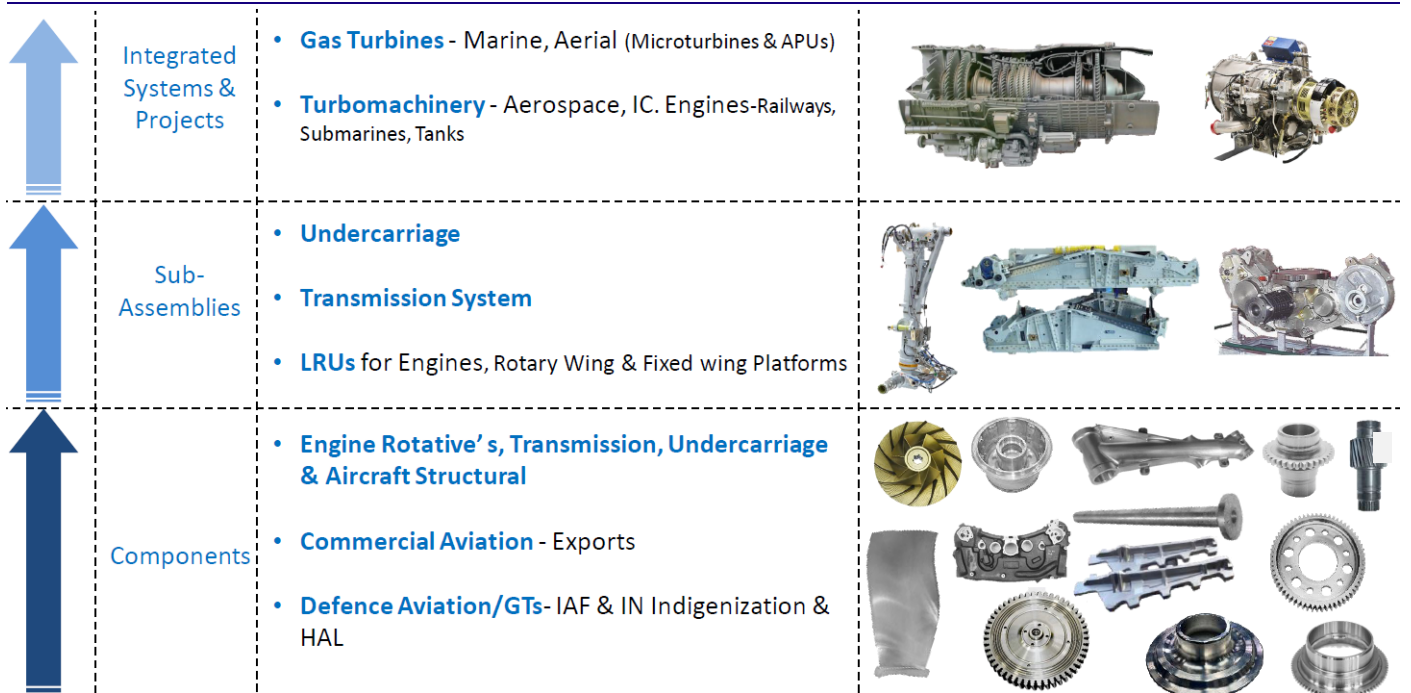
Source: Company, MOFSL

Exhibit 5: Defence – Mix of platforms and recurring revenues



Source: Company, MOFSL

Exhibit 6: Aerospace – Building a value-added product portfolio







Source: Company, MOFSL

Exhibit 7: E-mobility – Product portfolio and capabilities of BHFC

Advanced Technologies	Product Portfolio aligned to EV markets		Future products (2025)
Embedded Systems	Power Electronics 	Traction / Drivetrain 	H2 Fuel cell based powertrain solutions
Data Analytics			Advanced Electric Chassis
Artificial Intelligence (AI)	Mechanical (Light Weighting) 	Energy Storage 	H2 Fuel Cell Membranes
Telematics & Remote Diagnostics			Advanced e-Axle
Connected Vehicles			Carbon Fiber Composites
V2G & V2V Charging			Sodium ion Battery
Advanced Cell Chemistries			Hydrogen Cylinders
Nano Technology			

Source: Company, MOFSL

Exhibit 8: BHFC's e-mobility business verticals

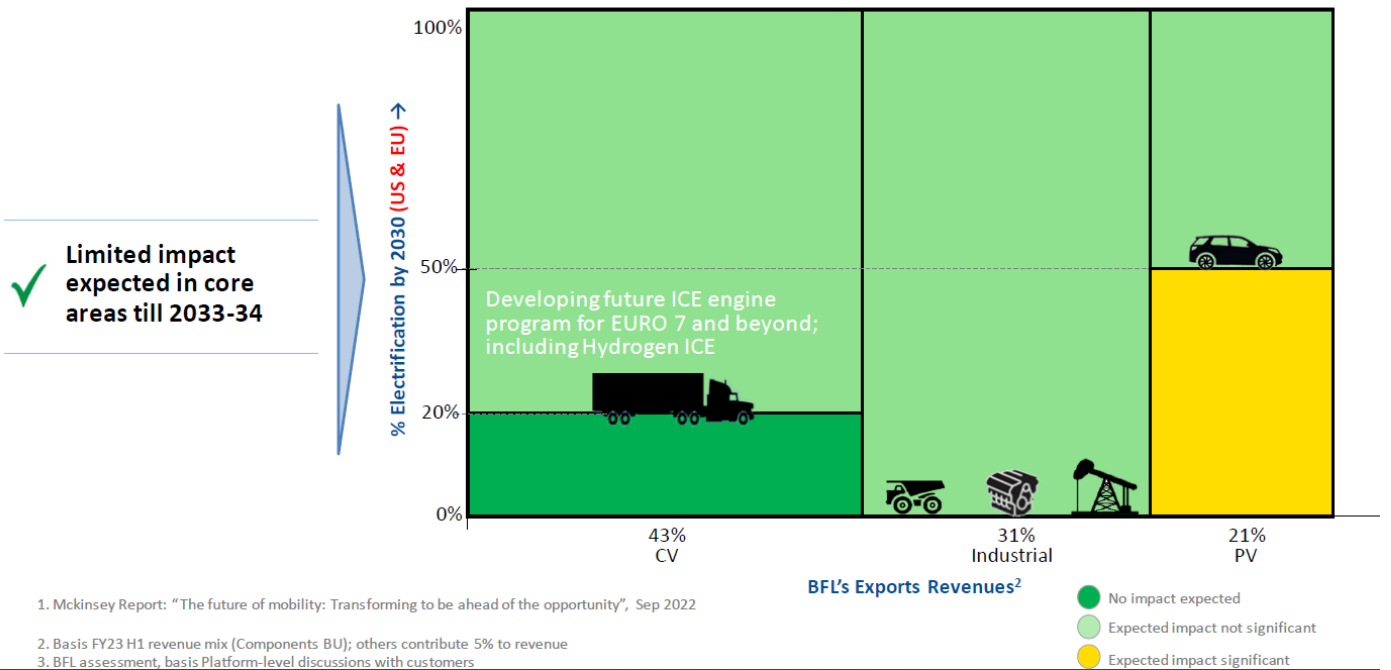
	PLI Covered
 <p>Electronic Components Manufacturing Make in India for global markets; Automotive Grade Power & Control Electronics</p>	✓
 <p>Commercial Vehicle Re-Powering Immediate market necessity for existing mid-life Trucks / Buses</p>	
 <p>2W e-Bike & 3W Kits (TORK Motors) White labelled manufacturing to harness inherent Kalyani group manufacturing excellence</p>	✓*
 <p>Traction Drives, EDU & E-Axles In-house development and manufacturing of EV traction drives</p>	✓

* eMotor

Source: Company, MOSL

Exhibit 9: EV risk for the export business portfolio

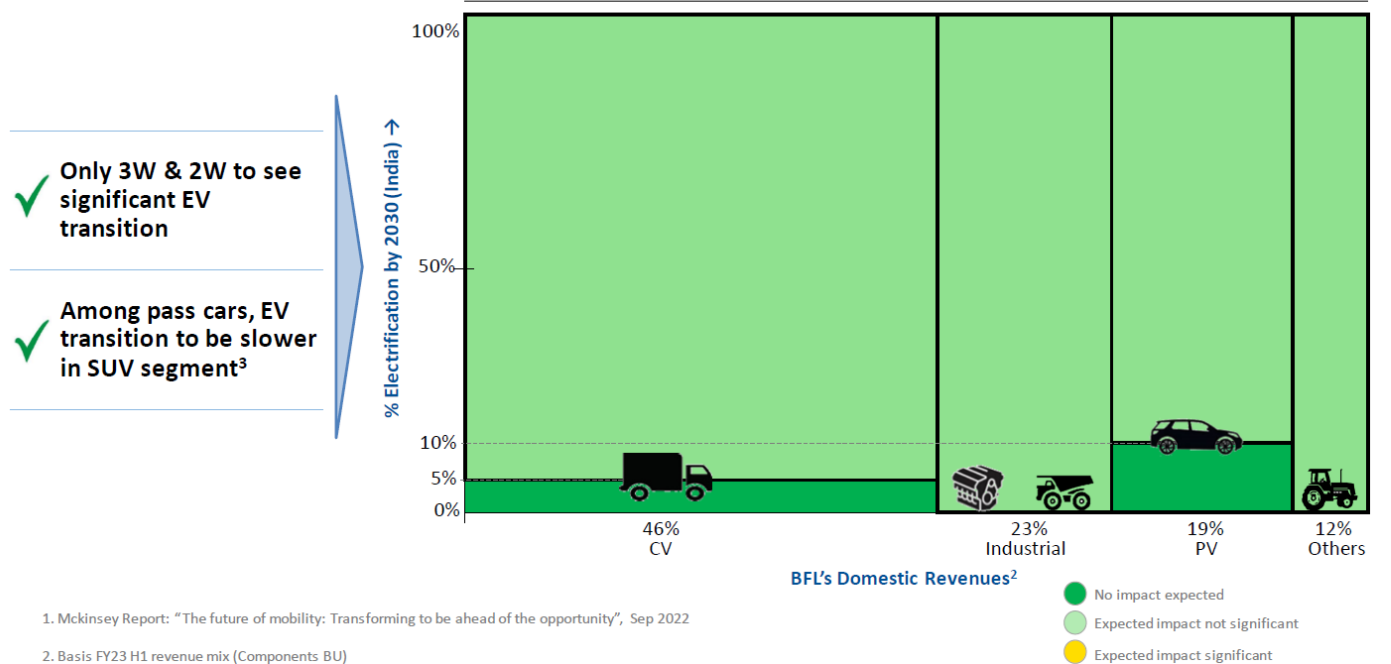
2030 View: Expected penetration of Electrification¹



Source: Company, MOSL

Exhibit 10: EV risk for the domestic business portfolio

2030 View: Expected penetration of Electrification¹



Source: Company, MOSL

Exhibit 11: P/E chart

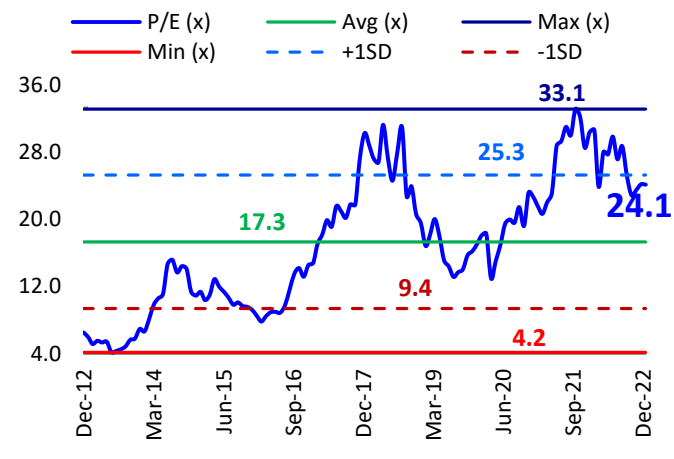
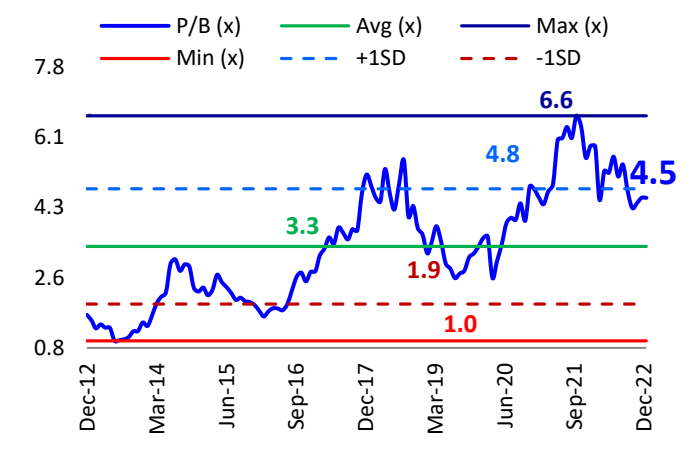


Exhibit 12: P/B chart



Source: MOFSL

Key operating metrics

Revenue model

INR M	FY19	FY20	FY21	FY22	FY23E	FY24E	FY25E
Autos	34,148	25,194	21,359	33,143	41,070	43,839	48,213
% of total revenues	56	60	62	56	59	57	56
CV	26,900	17,884	14,702	24,597	28,197	29,197	31,814
% of total revenues	44	43	43	42	41	38	37
PV	7,248	7,310	6,657	8,546	12,873	14,642	16,399
% of total revenues	12	17	19	15	19	19	19
Non-Autos	26,565	16,811	13,001	25,573	27,969	32,812	37,646
% of total revenues	44	40	38	44	41	43	44
Market mix (net sales incl Op Income)							
India	27,942	19,137	16,873	25,737	30,726	35,871	41,667
% of total revenues	43	42	46	41	42	44	46
Growth (%)	19	-32	-12	53	19	17	16
Exports	37,258	26,502	19,642	36,699	42,721	45,144	48,982
% of total revenues	57	58	54	59	0	0	0
Growth (%)	25	-29	-26	87	0	0	0
Total Net Op Revenues	65,200	45,639	36,515	62,436	73,447	81,015	90,649
Growth (%)	23	-30	-20	71	0	0	0
Subsidiary Revenues	36,257	34,919	26,848	42,175	52,839	59,710	65,799
Growth (%)	19	-4	-23	57	25	13	10
Net Consolidated Revenues	1,01,457	80,558	63,363	1,04,611	1,26,286	1,40,724	1,56,448
Growth (%)	21	-21	-21	65	21	11	11
S/A EBITDA margins (%)	28.8	22.8	20.1	26.7	25.7	26.7	27.2
Consol EBITDA margins (%)	20.3	14.1	13.6	18.9	17.6	20.5	21.6
Consol EPS (INR)	22.2	8.8	1.9	21.7	21.2	33.5	41.4
Growth (%)	25.5	-60.3	-78.5	1,047.8	-2.2	58.0	23.6

Financials and valuations

Consolidated - Income Statement							(INR m)
Y/E March	FY19	FY20	FY21	FY22	FY23E	FY24E	FY25E
Net Sales	1,01,457	80,558	63,363	1,04,611	1,26,286	1,40,724	1,56,448
Change (%)	21.4	-20.6	-21.3	65.1	20.7	11.4	11.2
EBITDA	20,556	11,389	8,634	19,810	22,251	28,882	33,860
Margin (%)	20.3	14.1	13.6	18.9	17.6	20.5	21.6
Depreciation	5,208	5,477	6,122	7,303	7,942	8,368	8,754
EBIT	15,348	5,912	2,512	12,507	14,309	20,514	25,106
Int. and Finance Charges	1,272	1,713	1,077	1,604	1,856	1,838	1,683
Other Income - Rec.	2,028	1,637	1,673	2,308	1,616	1,923	2,207
PBT bef. EO Exp.	16,104	5,835	3,107	13,211	14,069	20,599	25,630
EO Expense/(Income)	0	789	3,062	-924	0	0	0
PBT after EO Exp.	16,104	5,046	45	14,135	14,069	20,599	25,630
Tax Rate (%)	35.2	22.3	2245.8	21.5	30.1	24.5	24.9
Reported PAT	10,440	3,921	-970	11,101	9,832	15,561	19,248
PAT Adj for EO items	10,440	4,518	1,174	10,375	9,832	15,561	19,248
Change (%)	28.2	-56.7	-74.0	784.0	-5.2	58.3	23.7
Margin (%)	10.3	5.6	1.9	9.9	7.8	11.1	12.3
Less: Minority Interest	118	423	294	281	-47	-47	-47
Adj PAT	10,322	4,095	880	10,098	9,879	15,608	19,295

Consolidated - Balance Sheet							(INR m)
Y/E March	FY19	FY20	FY21	FY22	FY23E	FY24E	FY25E
Equity Share Capital	931	931	931	931	931	931	931
Total Reserves	52,829	51,266	53,220	64,775	71,744	84,441	1,00,826
Net Worth	53,761	52,197	54,151	65,707	72,675	85,372	1,01,757
Minority Interest	298	320	317	561	561	561	561
Deferred Liabilities	2,062	507	1,445	1,718	1,718	1,718	1,718
Total Loans	37,728	38,784	45,798	56,545	54,545	52,545	50,545
Capital Employed	93,850	91,807	1,01,711	1,24,531	1,29,499	1,40,197	1,54,582
Gross Block	54,985	63,299	76,756	81,926	97,424	1,01,924	1,06,424
Less: Accum. Deprn.	18,739	23,279	29,256	33,226	41,168	49,536	58,290
Net Fixed Assets	36,246	40,020	47,500	48,700	56,255	52,388	48,134
Capital WIP	8,307	11,427	9,001	11,248	1,000	1,000	1,000
Total Investments	15,237	16,180	26,068	26,038	28,038	30,038	32,038
Curr. Assets, Loans&Adv.	55,993	47,197	48,309	68,933	78,496	94,981	1,15,889
Inventory	18,447	17,347	17,939	27,105	34,599	38,555	42,863
Account Receivables	21,478	14,938	14,096	21,623	25,949	28,916	32,147
Cash and Bank Balance	4,755	5,751	4,729	6,030	1,686	9,390	20,734
Loans and Advances	11,314	9,161	11,546	14,176	16,262	18,121	20,145
Curr. Liability & Prov.	21,933	23,017	29,167	30,387	34,289	38,209	42,479
Creditors	13,664	10,309	12,068	16,314	17,299	19,277	21,431
Other Current Liabilities	6,200	10,000	14,093	11,396	13,758	15,331	17,044
Provisions	2,069	2,707	3,006	2,677	3,232	3,601	4,004
Net Current Assets	34,060	24,181	19,142	38,546	44,207	56,772	73,410
Appl. of Funds	93,850	91,807	1,01,711	1,24,531	1,29,499	1,40,197	1,54,582

E: MOFSL Estimates

Financials and valuations

Ratios

Y/E March	FY19	FY20	FY21	FY22	FY23E	FY24E	FY25E
Basic (INR)							
EPS	22.2	8.8	1.9	21.7	21.2	33.5	41.4
Cash EPS	33.4	20.6	15.0	37.4	38.3	51.5	60.2
BV/Share	115.5	112.1	116.3	141.1	156.1	183.3	218.5
DPS	5.5	2.0	2.0	5.5	6.3	6.3	6.3
Payout (%)	24.5	28.5	-96.0	23.2	29.6	18.7	15.1
Valuation (x)							
P/E	38.6	97.4	453.3	39.5	40.4	25.6	20.7
Cash P/E	25.7	41.7	57.0	22.9	22.4	16.6	14.2
P/BV	7.4	7.6	7.4	6.1	5.5	4.7	3.9
EV/Sales	4.3	5.4	6.9	4.3	3.6	3.1	2.7
EV/EBITDA	21.0	37.9	51.0	22.7	20.3	15.3	12.7
Dividend Yield (%)	0.6	0.2	0.2	0.6	0.7	0.7	0.7
FCF per share	-4.7	12.0	2.3	-12.1	9.5	35.3	42.8
Return Ratios (%)							
RoE	20.6	7.7	1.7	16.9	14.3	19.8	20.6
RoCE (Post-tax)	13.2	6.4	3.2	10.5	8.9	12.8	14.1
RoIC	15.8	7.4	3.0	13.7	11.1	15.6	18.8
Working Capital Ratios							
Fixed Asset Turnover (x)	1.8	1.3	0.8	1.3	1.3	1.4	1.5
Inventory (Days)	66	79	103	95	100	100	100
Debtor (Days)	77	68	81	75	75	75	75
Creditor (Days)	49	47	70	57	50	50	50
Working Capital (Days)	105	84	83	113	123	123	123
Leverage Ratio (x)							
Debt/Equity	0.7	0.7	0.8	0.9	0.8	0.6	0.5

Consolidated - Cash Flow Statement

(INR m)

Y/E March	FY19	FY20	FY21	FY22	FY23E	FY24E	FY25E
Operating PBT	16,104	5,046	45	14,135	14,309	20,514	25,106
Depreciation	5,208	5,477	6,122	7,303	7,942	8,368	8,754
Other income	52	3,208	4,101	-1,510	1,663	1,970	2,254
Direct Taxes Paid	-5,502	-2,331	-934	-3,525	-4,238	-5,038	-6,382
(Inc)/Dec in WC	-6,747	4,607	3,837	-12,269	-10,005	-4,861	-5,294
CF from Operations	9,115	16,008	13,171	4,134	9,672	20,952	24,438
CF from Operating incl EO	9,115	15,219	10,200	5,058	9,672	20,952	24,438
(inc)/dec in FA	-11,318	-9,618	-9,143	-10,683	-5,250	-4,500	-4,500
Free Cash Flow	-2,203	5,601	1,058	-5,625	4,422	16,452	19,938
(Pur)/Sale of Investments	-433	-1,705	-5,494	3,634	-2,000	-2,000	-2,000
CF from Investments	-11,751	-11,322	-14,636	-7,049	-7,250	-6,500	-6,500
Inc/(Dec) in Debt	7,313	1,082	6,591	6,517	-2,000	-2,000	-2,000
Interest Paid	-1,038	-1,380	-808	-1,444	-1,856	-1,838	-1,683
Dividend Paid	-2,806	-3,335	0	-1,642	-2,910	-2,910	-2,910
CF from Fin. Activity	3,468	-3,633	5,783	3,102	-6,766	-6,748	-6,593
Inc/Dec of Cash	832	263	1,347	1,111	-4,344	7,704	11,345
Add: Beginning Balance	2,030	2,862	3,126	4,473	5,584	1,240	8,943
Closing Balance	2,862	3,126	4,473	5,584	1,240	8,943	20,288

E: MOFSL Estimates;

Explanation of Investment Rating	
Investment Rating	Expected return (over 12-month)
BUY	>=15%
SELL	< - 10%
NEUTRAL	< - 10 % to 15%
UNDER REVIEW	Rating may undergo a change
NOT RATED	We have forward looking estimates for the stock but we refrain from assigning recommendation

*In case the recommendation given by the Research Analyst is inconsistent with the investment rating legend for a continuous period of 30 days, the Research Analyst shall be within following 30 days take appropriate measures to make the recommendation consistent with the investment rating legend.

Disclosures

The following Disclosures are being made in compliance with the SEBI Research Analyst Regulations 2014 (herein after referred to as the Regulations).

Motilal Oswal Financial Services Ltd. (MOFSL) is a SEBI Registered Research Analyst having registration no. INH000000412. MOFSL, the Research Entity (RE) as defined in the Regulations, is engaged in the business of providing Stock broking services, Depository participant services & distribution of various financial products. MOFSL is a listed public company, the details in respect of which are available on www.motilaloswal.com. MOFSL (erstwhile Motilal Oswal Securities Limited - MOSL) is registered with the Securities & Exchange Board of India (SEBI) and is a registered Trading Member with National Stock Exchange of India Ltd. (NSE) and Bombay Stock Exchange Limited (BSE), Multi Commodity Exchange of India Limited (MCX) and National Commodity & Derivatives Exchange Limited (NCDEX) for its stock broking activities & is Depository participant with Central Depository Services Limited (CDSL) National Securities Depository Limited (NSDL), NERL, COMRIS and CCRL and is member of Association of Mutual Funds of India (AMFI) for distribution of financial products and Insurance Regulatory & Development Authority of India (IRDA) as Corporate Agent for insurance products. Details of associate entities of Motilal Oswal Financial Services Limited are available on the website at <http://online-reports.motilaloswal.com/Dormant/documents/List%20of%20Associate%20companies.pdf>

MOFSL and its associate company(ies), their directors and Research Analyst and their relatives may; (a) from time to time, have a long or short position in, act as principal in, and buy or sell the securities or derivatives thereof of companies mentioned herein. (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 company(ies) discussed herein or act as an advisor or lender/borrower to such company(ies) or may have any other potential conflict of interests with respect to any recommendation and other related information and opinions.; however the same shall have no bearing whatsoever on the specific recommendations made by the analyst(s), as the recommendations made by the analyst(s) are completely independent of the views of the associates of MOFSL even though there might exist an inherent conflict of interest in some of the stocks mentioned in the research report.

MOFSL and / or its affiliates do and seek to do business including investment banking with companies covered in its research reports. As a result, the recipients of this report should be aware that MOFSL may have a potential conflict of interest that may affect the objectivity of this report. Compensation of Research Analysts is not based on any specific merchant banking, investment banking or brokerage service transactions. Details of pending Enquiry Proceedings of Motilal Oswal Financial Services Limited are available on the website at <https://galaxy.motilaloswal.com/ResearchAnalyst/PublishViewLitigation.aspx>

A graph of daily closing prices of securities is available at www.nseindia.com, www.bseindia.com. Research Analyst views on Subject Company may vary based on Fundamental research and Technical Research. Proprietary trading desk of MOFSL or its associates maintains arm's length distance with Research Team as all the activities are segregated from MOFSL research activity and therefore it can have an independent view with regards to Subject Company for which Research Team have expressed their views.

Regional Disclosures (outside India)

This report is not directed or intended for distribution to or use by any person or entity resident in a state, country or any jurisdiction, where such distribution, publication, availability or use would be contrary to law, regulation or which would subject MOFSL & its group companies to registration or licensing requirements within such jurisdictions.

For Hong Kong:

This report is distributed in Hong Kong by Motilal Oswal capital Markets (Hong Kong) Private Limited, a licensed corporation (CE AYY-301) licensed and regulated by the Hong Kong Securities and Futures Commission (SFC) pursuant to the Securities and Futures Ordinance (Chapter 571 of the Laws of Hong Kong) "SFO". As per SEBI (Research Analyst Regulations) 2014 Motilal Oswal Securities (SEBI Reg. No. INH000000412) has an agreement with Motilal Oswal capital Markets (Hong Kong) Private Limited for distribution of research report in Hong Kong. This report is intended for distribution only to "Professional Investors" as defined in Part I of Schedule 1 to SFO. Any investment or investment activity to which this document relates is only available to professional investor and will be engaged only with professional investors." Nothing here is an offer or solicitation of these securities, products and services in any jurisdiction where their offer or sale is not qualified or exempt from registration. The Indian Analyst(s) who compile this report is/are not located in Hong Kong & are not conducting Research Analysis in Hong Kong.

For U.S.

Motilal Oswal Financial Services Limited (MOFSL) is not a registered broker - dealer under the U.S. Securities Exchange Act of 1934, as amended (the "1934 act") and under applicable state laws in the United States. In addition MOFSL is not a registered investment adviser under the U.S. Investment Advisers Act of 1940, as amended (the "Advisers Act" and together with the 1934 Act, the "Acts"), and under applicable state laws in the United States. Accordingly, in the absence of specific exemption under the Acts, any brokerage and investment services provided by MOFSL, including the products and services described herein are not available to or intended for U.S. persons. This report is intended for distribution only to "Major Institutional Investors" as defined by Rule 15a-6(b)(4) of the Exchange Act and interpretations thereof by SEC (henceforth referred to as "major institutional investors"). This document must not be acted on or relied on by persons who are not major institutional investors. Any investment or investment activity to which this document relates is only available to major institutional investors and will be engaged in only with major institutional investors. In reliance on the exemption from registration provided by Rule 15a-6 of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act") and interpretations thereof by the U.S. Securities and Exchange Commission ("SEC") in order to conduct business with Institutional Investors based in the U.S., MOFSL has entered into a chaperoning agreement with a U.S. registered broker-dealer, Motilal Oswal Securities International Private Limited. ("MOSIPL"). Any business interaction pursuant to this report will have to be executed within the provisions of this chaperoning agreement.

The Research Analysts contributing to the report may not be registered /qualified as research analyst with FINRA. Such research analyst may not be associated persons of the U.S. registered broker-dealer, MOSIPL, and therefore, may not be subject to NASD rule 2711 and NYSE Rule 472 restrictions on communication with a subject company, public appearances and trading securities held by a research analyst account.

For Singapore

In Singapore, this report is being distributed by Motilal Oswal Capital Markets Singapore Pte Ltd ("MOCMSPL") (Co. Reg. NO. 201129401Z) which is a holder of a capital markets services license and an exempt financial adviser in Singapore. As per the approved agreement under Paragraph 9 of Third Schedule of Securities and Futures Act (CAP 289) and Paragraph 11 of First Schedule of Financial Advisors Act (CAP 110) provided to MOCMSPL by Monetary Authority of Singapore. Persons in Singapore should contact MOCMSPL in respect of any matter arising from, or in connection with this report/publication/communication. This report is distributed solely to persons who qualify as "Institutional Investors", of which some of whom may consist of "accredited" institutional investors as defined in section 4A(1) of the Securities and Futures Act, Chapter 289 of Singapore ("the SFA"). Accordingly, if a Singapore person is not or ceases to be such an institutional investor, such Singapore Person must immediately discontinue any use of this Report and inform MOCMSPL.

Specific Disclosures

- 1 MOFSL, Research Analyst and/or his relatives does not have financial interest in the subject company, as they do not have equity holdings in the subject company.
- 2 MOFSL, Research Analyst and/or his relatives do not have actual/beneficial ownership of 1% or more securities in the subject company
- 3 MOFSL, Research Analyst and/or his relatives have not received compensation/other benefits from the subject company in the past 12 months
- 4 MOFSL, Research Analyst and/or his relatives do not have material conflict of interest in the subject company at the time of publication of research report
- 5 Research Analyst has not served as director/officer/employee in the subject company
- 6 MOFSL has not acted as a manager or co-manager of public offering of securities of the subject company in past 12 months
- 7 MOFSL has not received compensation for investment banking/ merchant banking/brokerage services from the subject company in the past 12 months
- 8 MOFSL has not received compensation for other than investment banking/merchant banking/brokerage services from the subject company in the past 12 months
- 9 MOFSL has not received any compensation or other benefits from third party in connection with the research report
- 10 MOFSL has not engaged in market making activity for the subject company

The associates of MOFSL may have:

- financial interest in the subject company
- actual/beneficial ownership of 1% or more securities in 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.
- received compensation/other benefits from the subject company in the past 12 months

- any other potential conflict of interests with respect to any recommendation and other related information and opinions.; however, the same shall have no bearing whatsoever on the specific recommendations made by the analyst(s), as the recommendations made by the analyst(s) are completely independent of the views of the associates of MOFSL even though there might exist an inherent conflict of interest in some of the stocks mentioned in the research report.
- acted as a manager or co-manager of public offering of securities of the subject company in past 12 months
- 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 company(ies) discussed herein or act as an advisor or lender/borrower to such company(ies)
- received compensation from the subject company in the past 12 months for investment banking / merchant banking / brokerage services or from other than said services.
- Served subject company as its clients during twelve months preceding the date of distribution of the research report.

The associates of MOFSL has not received any compensation or other benefits from third party in connection with the research report

Above disclosures include beneficial holdings lying in demat account of MOFSL which are opened for proprietary investments only. While calculating beneficial holdings, It does not consider demat accounts which are opened in name of MOFSL for other purposes (i.e holding client securities, collaterals, error trades etc.). MOFSL also earns DP income from clients which are not considered in above disclosures.

Analyst Certification

The views expressed in this research report accurately reflect the personal views of the analyst(s) about the subject securities or issues, and no part of the compensation of the research analyst(s) was, is, or will be directly or indirectly related to the specific recommendations and views expressed by research analyst(s) in this report.

Terms & Conditions:

This report has been prepared by MOFSL and is meant for sole use by the recipient and not for circulation. The report and information contained herein is strictly confidential and may not be altered in any way, transmitted to, copied or distributed, in part or in whole, to any other person or to the media or reproduced in any form, without prior written consent of MOFSL. The report is based on the facts, figures and information that are considered true, correct, reliable and accurate. The intent of this report is not recommendatory in nature. The information is obtained from publicly available media or other sources believed to be reliable. Such information has not been independently verified and no guaranty, representation of warranty, express or implied, is made as to its accuracy, completeness or correctness. All such information and opinions are subject to change without notice. The report is prepared solely for informational purpose and does not constitute an offer document or solicitation of offer to buy or sell or subscribe for securities or other financial instruments for the clients. Though disseminated to all the customers simultaneously, not all customers may receive this report at the same time. MOFSL will not treat recipients as customers by virtue of their receiving this report.

Disclaimer:

The report and information contained herein is strictly confidential and meant solely for the selected recipient and may not be altered in any way, transmitted to, copied or distributed, in part or in whole, to any other person or to the media or reproduced in any form, without prior written consent. This report and information herein is solely for informational purpose and may not be used or considered as an offer document or solicitation of offer to buy or sell or subscribe for securities or other financial instruments. Nothing in this report constitutes investment, legal, accounting and tax advice or a representation that any investment or strategy is suitable or appropriate to your specific circumstances. The securities discussed and opinions expressed in this report may not be suitable for all investors, who must make their own investment decisions, based on their own investment objectives, financial positions and needs of specific recipient. This may not be taken in substitution for the exercise of independent judgment by any recipient. Each recipient of this document should make such investigations as it deems necessary to arrive at an independent evaluation of an investment in the securities of companies referred to in this document (including the merits and risks involved), and should consult its own advisors to determine the merits and risks of such an investment. The investment discussed or views expressed may not be suitable for all investors. Certain transactions -including those involving futures, options, another derivative products as well as non-investment grade securities - involve substantial risk and are not suitable for all investors. No representation or warranty, express or implied, is made as to the accuracy, completeness or fairness of the information and opinions contained in this document. The Disclosures of Interest Statement incorporated in this document is provided solely to enhance the transparency and should not be treated as endorsement of the views expressed in the report. This information is subject to change without any prior notice. The Company reserves the right to make modifications and alternations to this statement as may be required from time to time without any prior approval. MOFSL, its associates, their directors and the employees may from time to time, effect or have effected an own account transaction in, or deal as principal or agent in or for the securities mentioned in this document. They may perform or seek to perform investment banking or other services for, or solicit investment banking or other business from, any company referred to in this report. Each of these entities functions as a separate, distinct and independent of each other. The recipient should take this into account before interpreting the document. This report has been prepared on the basis of information that is already available in publicly accessible media or developed through analysis of MOFSL. The views expressed are those of the analyst, and the Company may or may not subscribe to all the views expressed therein. This document is being supplied to you solely for your information and may not be reproduced, redistributed or passed on, directly or indirectly, to any other person or published, copied, in whole or in part, for any purpose. This report is not directed 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, regulation or which would subject MOFSL to any registration or licensing requirement within such jurisdiction. The securities described herein may or may not be eligible for sale in all jurisdictions or to certain category of investors. Persons in whose possession this document may come are required to inform themselves of and to observe such restriction. Neither the Firm, not its directors, employees, agents or representatives shall be liable for any damages whether direct or indirect, incidental, special or consequential including lost revenue or lost profits that may arise from or in connection with the use of the information. The person accessing this information specifically agrees to exempt MOFSL or any of its affiliates or employees from, any and all responsibility/liability arising from such misuse and agrees not to hold MOFSL or any of its affiliates or employees responsible for any such misuse and further agrees to hold MOFSL or any of its affiliates or employees free and harmless from all losses, costs, damages, expenses that may be suffered by the person accessing this information due to any errors and delays.

Registered Office Address: Motilal Oswal Tower, Rahimtullah Sayani Road, Opposite Parel ST Depot, Prabhadevi, Mumbai-400025; Tel No.: 022-3980 4263; www.motilaloswal.com.
Correspondence Address: Palm Spring Centre, 2nd Floor, Palm Court Complex, New Link Road, Malad (West), Mumbai- 400 064. Tel No: 022 71881000. Details of Compliance Officer: Neeraj Agarwal, Email Id: na@motilaloswal.com, Contact No.:022-71881085.

Registration details of group entities: Motilal Oswal Financial Services Ltd. (MOFSL): INZ000158836 (BSE/NSE/MCX/NCDEX); CDSL: IN-DP-16-2015; NSDL: IN-DP-NSDL-152-2000; Research Analyst: INH000000412. AMFI: ARN.: 146822. IRDA Corporate Agent – CA0579. Motilal Oswal Financial Services Ltd. is a distributor of Mutual Funds, PMS, Fixed Deposit, Insurance, Bond, NCDs and IPO products. Customer having any query/feedback/ clarification may write to query@motilaloswal.com. In case of grievances for any of the services rendered by Motilal Oswal Financial Services Limited (MOFSL) write to grievances@motilaloswal.com, for DP to dp grievances@motilaloswal.com.