

CONSUMER DURABLES

22 December 2022

Fan industry: Dynamics set to change post BEE ratings change

- New energy labelling norms effective Jan'23 downgrade the most efficient conventional fans from a 5-star rating to just 1 star
- Shift to energy-efficient BLDC fans could boost annual demand by up to 0.3x
- HAVL and CROMPTON are our top picks as proxy plays on the electric fan business

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Mandatory star ratings for electric fans: India's Bureau of Energy Efficiency (BEE) has mandated a star-rating (labelling) programme for electric fans, effective 1 Jan 2023. This move is intended to improve the energy efficiency of household appliances, given that electric fans consume 25–30% of household energy. The brushless direct current (BLDC) electric motor fans could provide the next phase of energy savings, similar to the transition to LEDs over conventional lighting. These fans are ~50% more efficient than conventional induction motor fans and suffer less wear & tear. Our analysis suggests that switching to BLDC fans can raise annual demand by up to 0.3x (Fig 2).

Energy-saving fans form just 3% of the industry: Electric fans have high market penetration at 90%, but the share of energy-efficient products constitutes a mere 3% of fan industry volumes vs. ~50% for most other appliances (Fig 3). We expect growing awareness about quality and energy efficiency coupled with the new regulations to spur product upgrades by consumers, accelerating growth in the segment.

Ample market opportunity for BLDC fans: Data from the Council for Energy, Environment and Water suggests that the total addressable market for energy-efficient fans is ~476mn units worth Rs 1.4tn. This includes (i) the entire existing stock of ceiling fans (potential replacement purchases) at 410mn units, and (ii) unfulfilled demand (potential first-time purchases) at 66mn units. The total annual market for electric fans is estimated at 65mn units or Rs 96bn, wherein star-labelled ceiling fans comprise just 9% of annual sales. In particular, the share of energy-efficient BLDC ceiling fans (falling under premium category) is even smaller, with 1mn units being sold annually.

HAVL, CROMPTON to benefit: Fans remain an appealing proposition for consumer durable companies due to their high ROE profile. We expect the upcoming regulatory norms to hasten the shift toward the premium BLDC fan segment, resulting in market consolidation. Another major driver for the replacement market is the shift in consumer preference from utilitarian to aspirational products (aesthetic, design and brand awareness). **HAVL** (BUY, TP Rs 1,500) with its higher premium segment contribution and **CROMPTON** (Rs 500, BUY) with its market leadership are our preferred plays on expected growth in the electric fan business.

Recommendation snapshot

Ticker	Price	Target	Rating
AMBER IN	1,929	2,100	HOLD
BLSTR IN	1,205	1,350	HOLD
CROMPTON IN	353	500	BUY
DIXON IN	3,877	5,200	BUY
HAVL IN	1,138	1,500	BUY
ORIENTEL IN	268	280	HOLD
POLYCAB IN	2,617	3,300	BUY
SYRMA IN	268	390	BUY
VGRD IN	268	250	HOLD
VOLT IN	807	950	HOLD

Price & Target in Rupees | Price as of 22 Dec 2022



In a nutshell

Fig 1 – BEE’s revised norms downgrade top-rated fans with 5 stars for energy efficiency to just 1 star

Minimum performance value		For sweep size <1200mm		For sweep size >1200mm	
Fan blade size (mm)	Minimum Service Value (m3/minute/Watt)	Star rating	Service value	Star rating	Service value
900	3.1	1 star	≥ 3.1 to < 3.6	1 star	≥ 4.0 to < 4.5 for 1200 mm ≥ 4.1 to < 4.5 for 1400 mm ≥ 4.3 to < 4.5 for 1500 mm
1050	3.1	2 star	≥ 3.6 to < 4.1	2 star	≥ 4.5 to < 5.0
1200	4.0	3 star	≥ 4.1 to < 4.6	3 star	≥ 5.0 to < 5.5
1400	4.1	4 star	≥ 4.6 to < 5.1	4 star	≥ 5.5 to < 6.0
1500	4.3	5 star	≥ 5.1	5 star	≥ 6.0

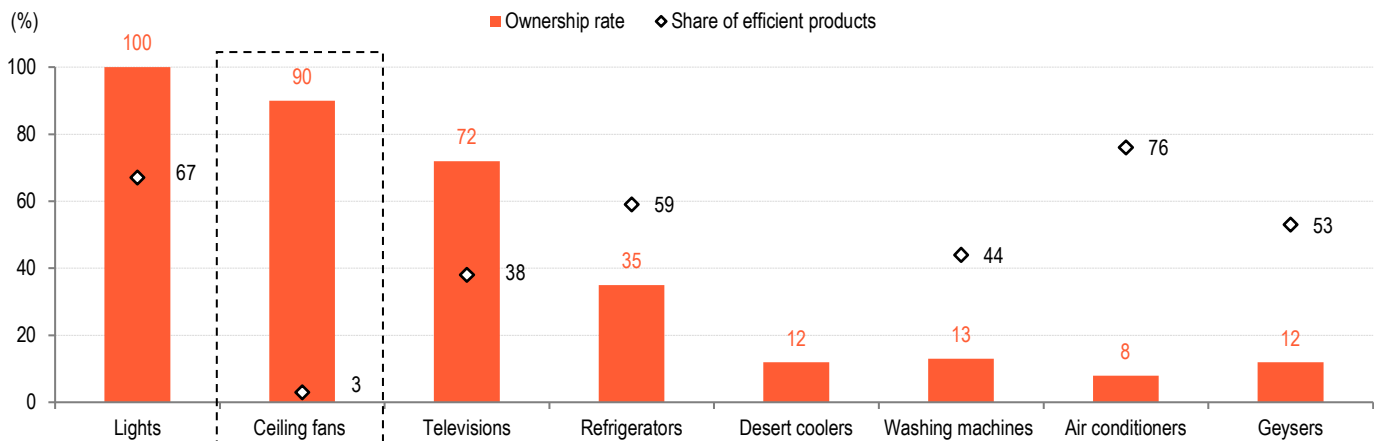
Source: BEE, BOBCAPS Research | Service Value – Cubic meters per minute/Wattage

Fig 2 – Transition from conventional induction motor to BLDC motor fans could spur the industry’s next phase of growth

Particulars	Value	Units
Current addressable market size [A]	476	mn units
Average cost of BLDC motor fan [B]	3,000	Rs/unit
Total opportunity size for BLDC fans (considered only 40% conversion) [C = 40%*A*B]	571	Rs bn
Annual market opportunity over the next 20 years [D = C/20]	29	Rs bn
Serviceable (unfulfilled) market size [E]	65	mn
Average cost of conventional fan considered [F]	1,476	Rs/unit
Current size of fan market [G = E*F]	120	Rs bn
Potential growth in overall demand	0.3x	-

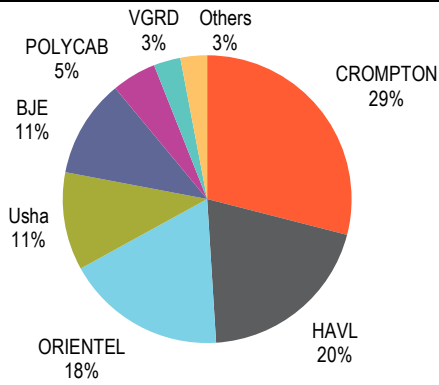
Source: Council for Energy, Environment and Water, BOBCAPS Research

Fig 3 – Significant headroom for growth in energy-efficient fans as compared to other consumer durable appliances



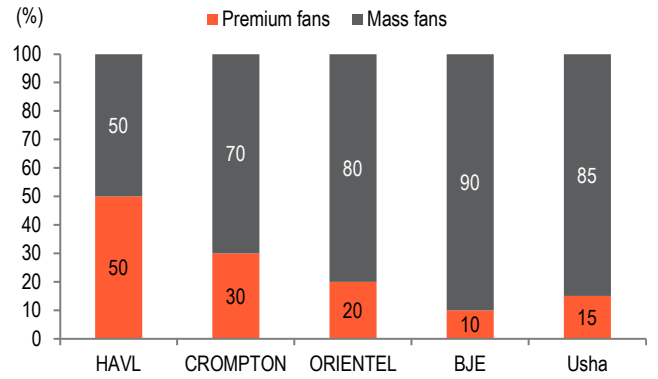
Source: Council for Energy, Environment and Water, BOBCAPS Research

Fig 4 – CROMPTON - highest market share in fan industry



Source: Company, BOBCAPS Research

Fig 5 – HAVELLS – highest premium mix



Source: Company, industry data, BOBCAPS Research

Implications of new BEE rating norms

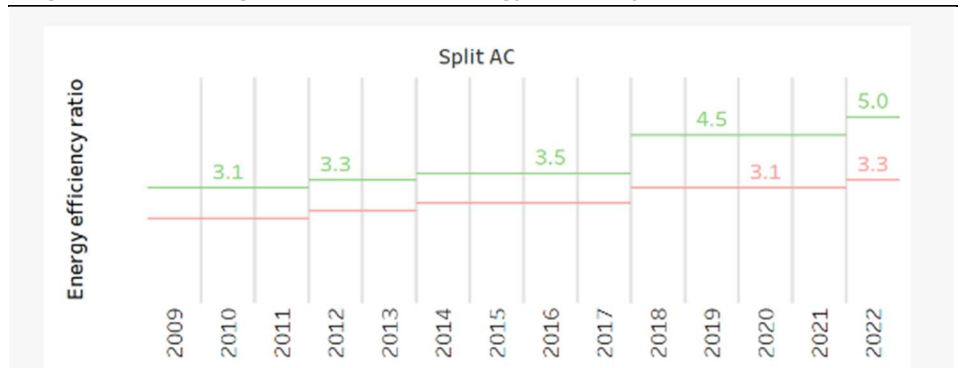
Stringent energy norms for fans from Jan'23

In 2010, the BEE introduced the Standards & Labelling programme (S&L), under which electrical appliances were rated by the bureau on a scale of 1 to 5, with 1 star ascribed to models with the least energy efficiency and 5 to the most efficient. A mandatory periodic revision of these ratings was implemented for air conditioners (revised four times to date), but not ceiling fans.

In the ceiling fan segment, the maiden mandatory label change was implemented in 2019. A second revision expected in Jun'20 was postponed due to Covid-19. This delay appears to be compensated for by the new stringent norms that come into effect from 1 Jan 2023, which require the best 5-star-rated ceiling fans to be downgraded to the entry level (1-star), rendering lower-rated fans unappealing to consumers.

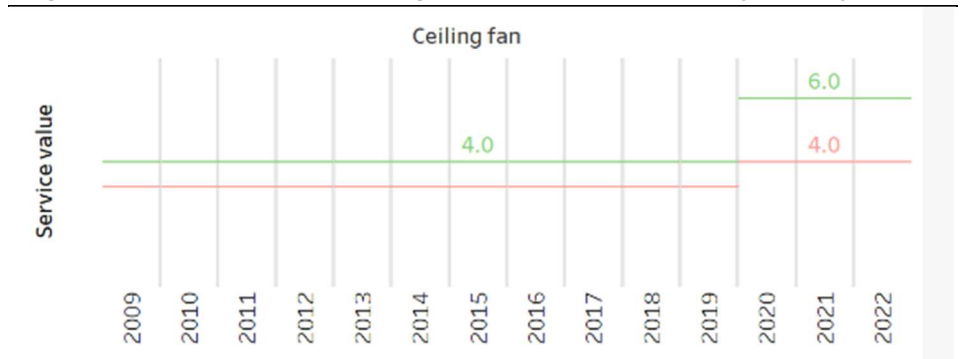
Following the scheduled label changes, the least efficient fan (standard parameters) in India will operate at ~55W. Also, while a service value (i.e. the amount of air delivered per minute per wattage of electricity) of 4 was earlier enough to achieve a 5-star rating, the threshold has been hiked to 6+ for fans with a sweep size of over 1,200mm.

Fig 6 – Periodic upgrades to split AC energy efficiency norms...



Source: energy.prayas.org, BOBCAPS Research | Minimum energy efficiency ratio for 1-star denoted by red and 5-star by green

Fig 7 – ...whereas norms for ceiling fans have been revised only recently



Source: energy.prayas.org, BOBCAPS Research | Service Value – Cubic meters per minute/ Wattage | MSV for 900 & 1200 mm denoted by red & green line respectively, For blade size – 900mm MSV was 3.1 which is now increased to 4 while for 1200mm fan MSV was 4 earlier which increased to 6.

Significant opportunity size for energy-efficient fans

We believe the transition from conventional to super-efficient BLDC fans will form the next leg of growth for the industry in the wake of deep under-penetration of energy-saving fans in India and the government’s push to optimise power consumption. In our view, the BEE’s revised rating scale will fuel demand for efficient fans largely in the form of replacement purchases. This represents a substantial opportunity size of Rs 1.4tn for BLDC fans, which we expect will be spread over a couple of decades.

Low penetration of efficient products

Ceiling fans, with ~90% ownership rate, are one of the most penetrated electrical appliance markets in India, second only to the lights segment (~100%). The use of traditional ceiling fans is preferred in the domestic market, with negligible consumption of energy-efficient products (i.e. BLDC fans). For most other electrical appliance categories, efficient products make up at least half of volumes, whereas this proportion is just 3% for ceiling fans.

Fig 8 – Fans segment has the lowest share of efficient products

Segment	Ownership rate (%)	Share of efficient products (%)
Lights	100	67
Ceiling fans	90	3
Televisions	72	38
Refrigerators	35	59
Desert coolers	12	-
Washing machines	13	44
Air conditioners	8	76
Geysers	3	53

Source: Council for Energy, Environment and Water, BOBCAPS Research

Annual market opportunity of Rs 29bn

Data from the Bureau of Energy Resources suggests that the total addressable market for energy-efficient fans is 476mn units worth Rs 1.4tn. This includes (i) the entire existing stock of ceiling fans (potential replacement purchases) of 410mn units, and (ii) unfulfilled demand (potential first-time purchases) of 66mn units. An opportunity size of Rs 1.4tn translates to demand of Rs 29bn (considering only 40% conversion) annually for BLDC fans over the next 20 years – a 0.3x scale-up in annual demand over the current conventional fan market size of Rs 96bn.

Fig 9 – Large opportunity size for energy-efficient fans

Particulars	Value	Units
Current addressable market size [A]	476	mn units
Average cost of BLDC motor fan [B]	3,000	Rs/unit
Total opportunity size for BLDC fans (considered only 40% conversion) [C = 40%*A*B]	571	Rs bn
Annual market opportunity over the next 20 years [D = C/20]	29	Rs bn
Serviceable (unfulfilled) market size [E]	65	mn
Average cost of conventional fan considered [F]	1,476	Rs/unit
Current size of fan market [G = E*F]	96	Rs bn
Potential growth in overall demand	0.3x	-

Source: Council for Energy, Environment and Water, BOBCAPS Research

BLDC fans the perfect fit for new norms

BLDC or brushless direct current motors are applied in varied end-user industries and, more recently, in fans. These fans are a perfect fit for the new rating norms as they consume far less energy than standard induction motor ceiling fans – less than half at full speed and ~20% at low speed, driving significant cost savings, and also suffer less wear and tear.

High annual savings from BLDC fans

The BLDC fan typically consumes only 28W at maximum speed vs. 70-75W for traditional fans. Key advantages include the use of smart electronics that minimise friction and allied power loss, improved flexibility over controlling motor speed, and noiseless & sparkless operations as mechanical brushes aren't used.

As per analysis, the use of the top-rated BLDC fan in industry achieves energy savings of ~226W/year, implying cost savings of Rs 1,354/year (with 16 hours of use a day and cost of electricity at Rs 6/unit). Assuming five fans per household, we arrive at considerable annual savings of ~Rs 33,000. The general price differential between the BLDC and conventional fan comes to Rs 1,500/Rs 2,000, which energy savings compensate for by the second year of use.

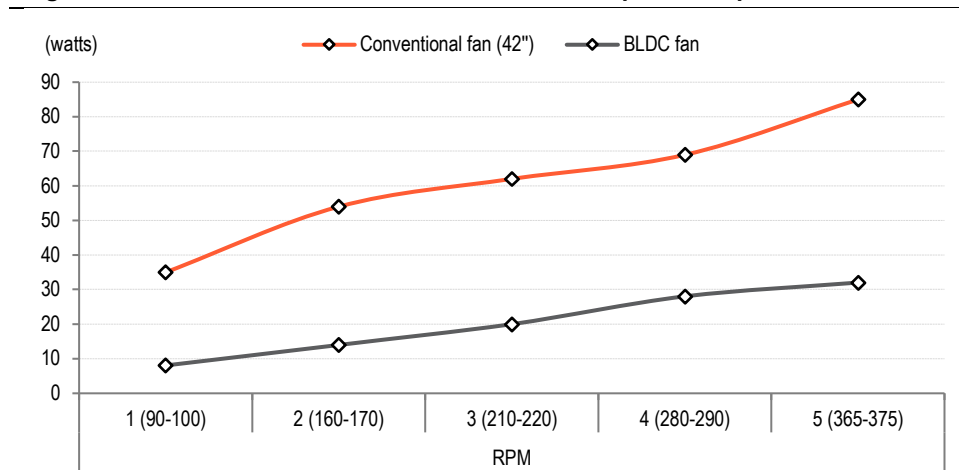
Besides the sizeable cost savings, BLDC products suffer lower wear and tear and have a longer shelf life. Leading manufacturers are offering a long three-year warranty for the motor which is an additional advantage.

Fig 10 – Annual savings on a single BLDC fan over a conventional fan

Parameter	Top Energy efficient BLDC fan	Conventional fan
Wattage (W)	28	75
Energy use/year* (W)	134	360
Electricity cost/year [^] (Rs/unit)	806	2160
Savings/year# (Rs)	1,354	-

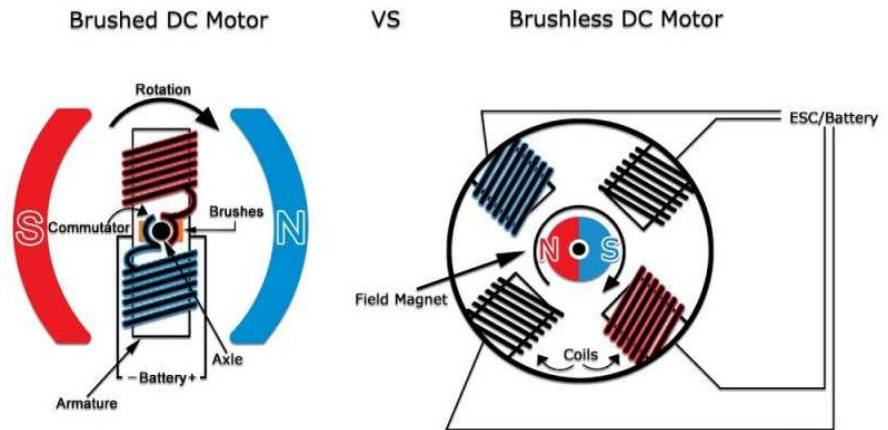
Source: Atomborg, BOBCAPS Research | Atomborg Gorilla BLDC fan considered *Usage – 16hrs/day, 300days/year; [^]Electricity cost – Rs 6/unit; # Savings vs. a 75W induction motor fan

Fig 11 – BLDC vs. conventional fan – Power consumption comparison



Source: Research paper by Mahesh Rao, BOBCAPS Research | RPM – Revolutions Per Minute

Fig 12 – BLDC vs. conventional fan motor



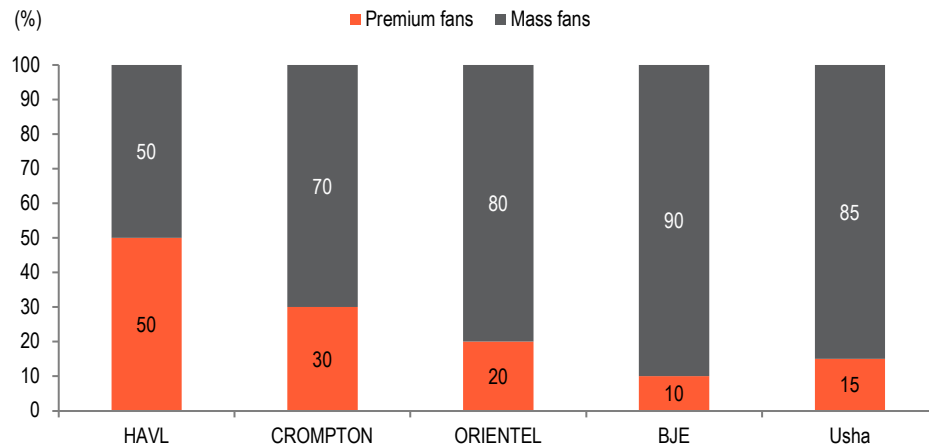
Source: Nestlafans, BOBCAPS Research

Large incremental opportunity for companies

With the advent of efficiency norms, we believe BLDC fans could provide the next phase of energy savings in India, similar to that brought about by the transition to LEDs over conventional lighting. In our view, the shift to energy-efficient products will benefit the two leading players in the segment – viz. HAVL and CROMPTON, both of which are our top picks as proxy plays on the electric fan business.

- While the fan industry is currently dominated by economy and mass premium fans (~77%), we note that the premium segment (~15%) is witnessing traction of late, led by product innovation and consumer awareness of energy efficiency. BLDC fans typically cost above Rs 3,000 and are thus mostly categorized as premium products.
- **HAVL** has the highest premium market share in fans and we expect the company to lead sales of super-efficient fans. We believe HAVL will continue to dominate the premium segment and maintain its market share over the long term.
- In terms of product mix, HAVL is well positioned in the premium segment (~50% revenue share, major market share) against its listed peers (second competitor at ~30% revenue share). The company has also launched newer variants in the BLDC vertical. We reiterate BUY on HAVL with a TP of Rs 1,500 based on an unchanged 53x P/E – 10% premium to the five-year average.
- Management aims to dominate the premium and decorative fan segments (currently own ~40% in these segments). Further, it expects to expand its market share to 50% via innovation and industry expertise.

Fig 13 – HAVL – premium revenue shares highest amongst the peers



Source: Company, industry data, BOBCAPS Research

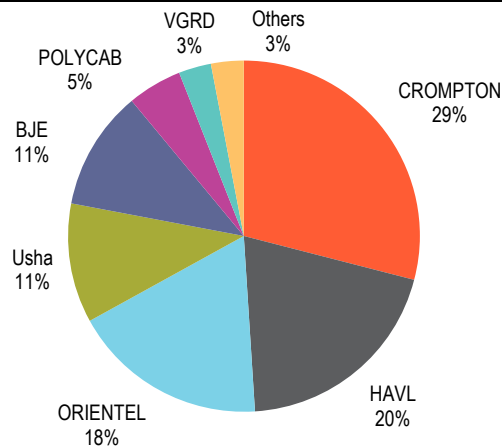
Fig 14 – HAVL leads in premium segment

Category	Market leader	Key players
Popular	CROMPTON	Usha, BJE
Economy	CROMPTON	HAVL, ORIENTEL, BJE, Usha
Premium	HAVL	ORIENTEL, CROMPTON, BJE, Atomberg, Usha

Source: Company, BOBCAPS Research

- We expect the BEE norm change to compel unorganised players to offload their entry-level fan inventory, implying greater competition for **CROMPTON** in the near future (1-2 years). However, given its market leadership, we expect CROMPTON to emerge as the preferred player and capture additional market share from unorganised players in the long run. We maintain BUY on the stock for a TP of Rs 500, valuing it at an unchanged 35x FY24E EPS, in line with the five-year average.

Fig 15 – Crompton – with the highest market share in fans segment – FY22



Source: Company, BOBCAPS Research

- ORIENTEL**, of late, has focused on becoming a premium player and thus scaled up its product investments accordingly. We believe these investments will bear fruit over the long term, enabling the company to add share in the premium category.

- With a presence largely in the popular and economy class variants, we expect players such as **VGRD**, **POLYCAB** and **BJE** to face competition from the offloading of entry-level fans by unorganised players. In our view, these companies will need to ramp up investments to attain expertise in the premium segment.
- Amongst the notable unlisted players, **Atomberg** has already created a niche for itself by focusing entirely on BLDC fans. We believe the company is likely to have the early-mover advantage as the changeover to super-efficient fans take place. But the market leaders are likely to catch up eventually due to their deep pockets for innovation, larger distribution channels and industry expertise.

Slower-than-expected transition a key risk

According to a Ministry of Power (MoP) 2021 report, the distribution of energy-efficient fans (50W) under the UJALA scheme had received a poor response with only 2.4mn units distributed since 2015 vs. affordable LED distribution of nearly 370mn bulbs since 2015. Failure of this transition to gather pace represents a key downside risk to our expectations.

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BUY – Expected return >+15%

HOLD – Expected return from -6% to +15%

SELL – Expected return <-6%

Note: Recommendation structure changed with effect from 21 June 2021

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