

India Strategy

Rural Monthly: Deteriorating “Milk economics”

This is the first edition of our Rural Monthly – in this we highlight key developments related to rural India on an on-going basis. A key development now is the sharp correction in milk prices. Given the strong growth in milk production in India (6% CAGR over the past 4 years) along with build-up of skimmed milk powder (SMP) inventory, domestic milk prices have remained soft for the past year, as reflected in the decline (c.20% YoY) in prices of some private players (Exhibit 9). Our channel checks and media inputs indicate that even some co-operative dairies (which procure c.20% of marketable surplus milk) are lowering procurement prices; we believe this implies sharper price cuts by private players. A decline in milk prices would positively impact dairy company margins, but would be negative for agri-household income, given dairy income accounts for c.15% of total income of the agri-households. Among other rural related updates, rainfall as of 26Jun’18 has been below normal (10%), and reflected in slower sowing than last year, particularly in Gujarat and Madhya Pradesh. Our visits to and channel checks in rural India indicate steady farmer sentiment, optimism in the on-going kharif crop season while they await Government announcement on MSP rates. Going forward, the benefits from factors such as better infrastructure, improved electricity access, increased financialisation and government interventions (rural capex, farm loan waivers, etc.) are likely to support income and consumption in rural India which is reflected in our Rural Model Portfolio (Exhibit 27).

- Cow economics could deteriorate in FY19:** India – the largest milk producer globally – has recorded a CAGR of c.5% in milk production over the past 2 decades, aided by yield improvement. Animal rearing (by c.70% of agri-households) has helped rural households diversify their incomes, leading to regular cash flows (as against almost 6-monthly cash flows after major crop seasons previously). However, the price realisation for milk farmers is highly variable, given the largely unorganised procurement mechanisms (60% of marketable surplus) and high volatility in prices – based on global price fluctuations – among organised players. As milk production is highly seasonal, the excess milk is stored in the form of SMP, whose exports have suffered over the past 3 years. Robust growth in milk production has led to an increase in SMP inventory levels to 0.2 million tonnes currently, from 0.1million tonnes earlier and any further increase can put pressure on prices and thereby returns for an agri house-hold. A detailed “Cow economics” model (Exhibit 13) highlights the break-even price and we believe procurement prices could be even below break-even in some places.
- Monsoon starts slow and consequent soft start of Kharif sowing:** As of 26Jun’18, rainfall was 10% below the LPA, with the deficit largely in Central and North Indian states (barring Punjab). Sowing therefore has yet to pick up meaningfully; by 22Jun’18, overall sowing was at 11.6 million hectares, down 10% YoY and 7% from usual levels. However, this is the initial period, and by this time, only c.10% of total sowing has taken place. Yet, we note that the decline in sowing has largely been on account of delayed sowing in Madhya Pradesh (soyabean) and Gujarat (groundnut and cotton) as farmers await rainfall this monsoon. Among crops, the sowing of cotton has been less in Punjab, while we expect normal sowing in the states of Gujarat and Maharashtra. A key trigger for rural India is likely to be the announcement of kharif MSP and procurement mechanism which is eagerly awaited and an acceleration in MSP growth rates during FY19 is a key driver for income/consumption boost in rural India, as discussed in our note ([Rural Safari-VII: On the Mend](#)).
- JM Model Rural Portfolio:** We initiated our model rural portfolio on 12Apr’18 (Exhibit 27). Since the inception, Consumer staples and Consumer discretionary have contributed to the outperformance.

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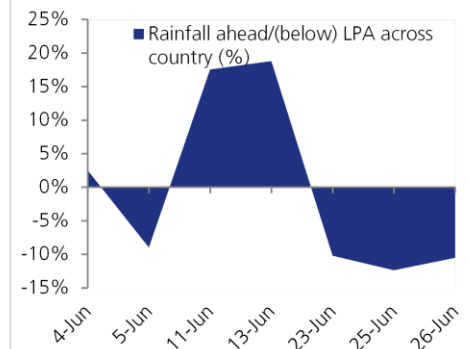
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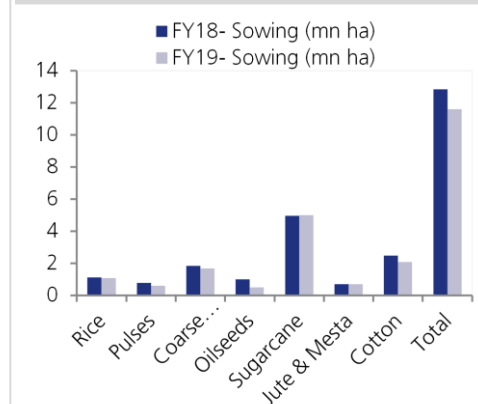
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Exhibit A. Rainfall progress during 2018


Source: IMD, Note: Rainfall till Jun 26, 2018

Exhibit B. Kharif sowing progress – A slow start in 2018


Source: PIB, Note: Sowing data till Jun 22 2018

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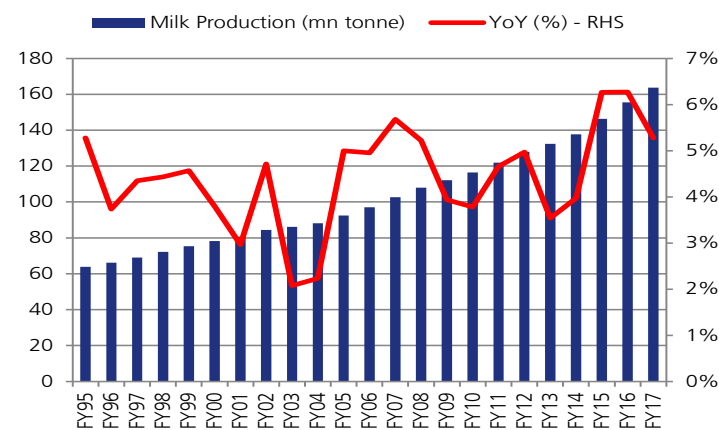
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Is Milk Economics “Deteriorating”

Milk production outpaces food-grain production

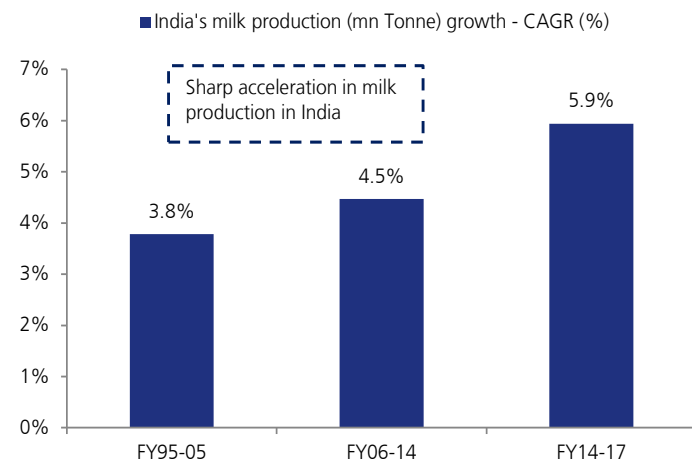
India’s milk production has been increasing at a steady pace of 4.4% CAGR over FY95-17, and has outpaced the food grain production growth of 1.5% during the same period. Urbanisation along with change in dietary patterns has driven growth of milk consumption, while improvement in yield (c.2-3%) has aided growth in milk production over the years. Growth in milk production has continued during FY18 as well and as per available data; it increased by 4.7% YoY in 1HFY18 ahead of the 3.9% YoY growth recorded in the previous year.

Exhibit 1. India’s milk production has increased at a CAGR of 4.4% (FY95-17) against food grain output growth of 1.5% during the same period



Source: CMIE, JM Financial

Exhibit 2. Recent years have seen further acceleration in milk production growth in the country



Source: CMIE, JM Financial

However, does strong production growth necessarily imply improvement in income? Recently, we have seen instances of price declines in some crop/product such as – Sugarcane (Sugar), Pulses where sharp improvement in production has resulted in price declines and thereby adversely impacting the returns from farming these crops and also demands for Government aid packages (INR70bn for Sugarcane announced in Jun’18). We believe the pricing scenario for milk also needs to be monitored closely to evaluate any adverse impact on farm economics.

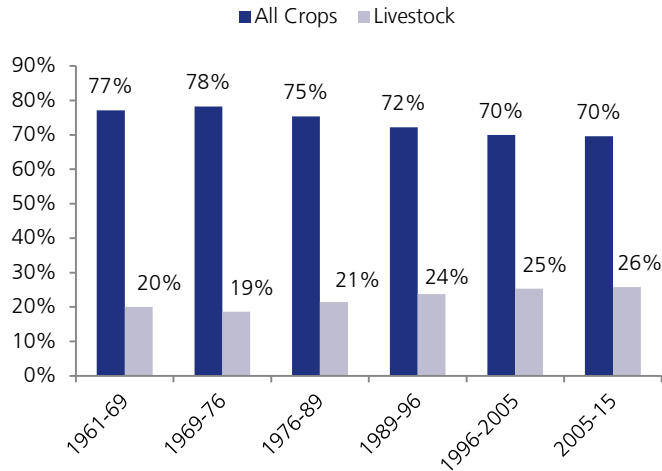
Increasing share of “Milk” in the agriculture house-hold income

Dairy or milk production has been associated with c.70% of agri-household families (source: NSSO) and has increasingly aided in income diversification away from cultivation as discussed in our previous rural safari reports.

From 20% share in agriculture GVA, Livestock (c.70% milk) now accounts for 26% of the agriculture GVA and is likely to see its share further increase as adoption of dairy/animal farming picks up.

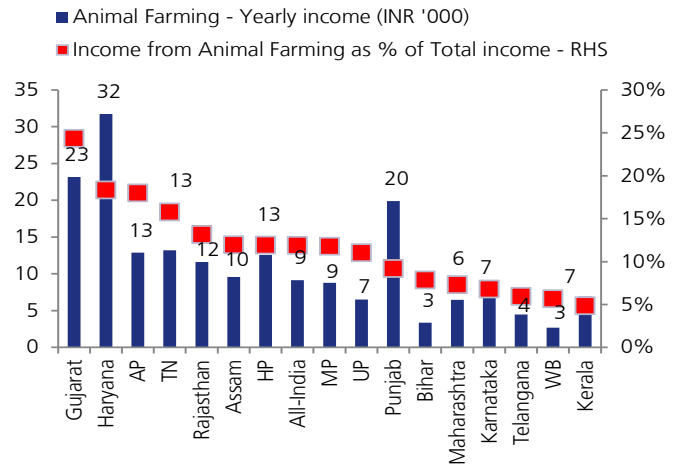
Within states, there is high variation in income from animal farming with Gujarat/Haryana accounting for 20%+ share in agri house-hold income from Animal farming, while for the country, it accounted for c.12%+ of total house-hold income.

Exhibit 3. Breakup of agriculture GVA - Share of Livestock (c.70% Milk) has increased over the years



Source: DFI, JM Financial

Exhibit 4. Income from animal farming accounts for c.12%+ share of total agri house-hold income, with significant variation across states



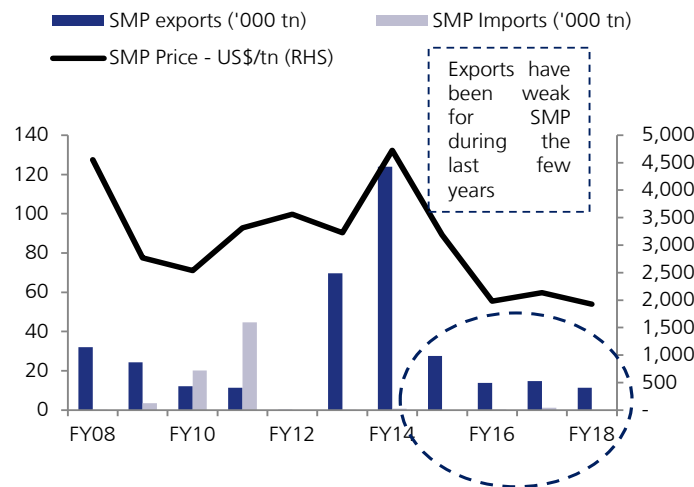
Source: NSSO, JM Financial, Note: Data as of FY13

Excess procured milk stored as “SMP”- Rising inventory levels of SMP can adversely impact domestic milk prices

Milk, being a perishable commodity requires adequate infrastructure for storage and quality monitoring. In addition, during periods of high production (winter months), excess milk is stored in the form of Skimmed Milk Powder (SMP) which is used in lean periods for producing milk (during Summer months) or is exported.

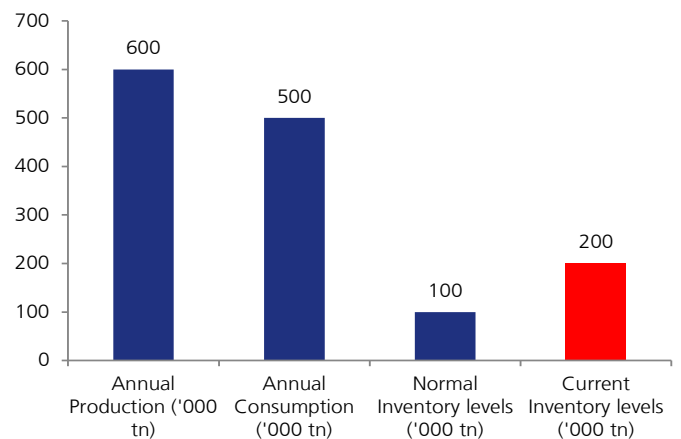
As per industry sources and our channel checks, annual SMP consumption in India is estimated to be 500K Tonne against a production of 600K Tonne, leading to almost 100K Tonne of exportable surplus every year. The major producers of SMP are the co-operatives such as Amul & Karnataka Milk Federation’s (KMF) Nandini Dairy as well as few private players.

Exhibit 5. SMP prices globally have been weak since past few years – consequently, export volumes of SMP has stagnated



Source: DGFT, JM Financial

Exhibit 6. Production and consumption of SMP in India ('000 tn) – Normal levels of 100K tn inventory; at present reached 200K tn

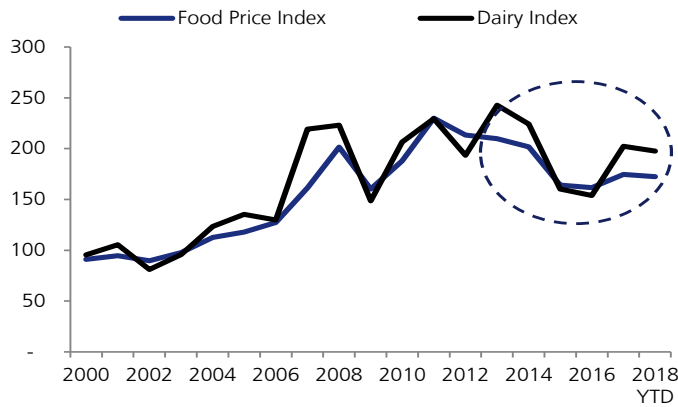


Source: Media reports, JM Financial

SMP prices had earlier crashed during FY15 due to lower imports by China, ban on imports by Russia on dairy products along with easing of exports from EU nations. **Afterwards, SMP**

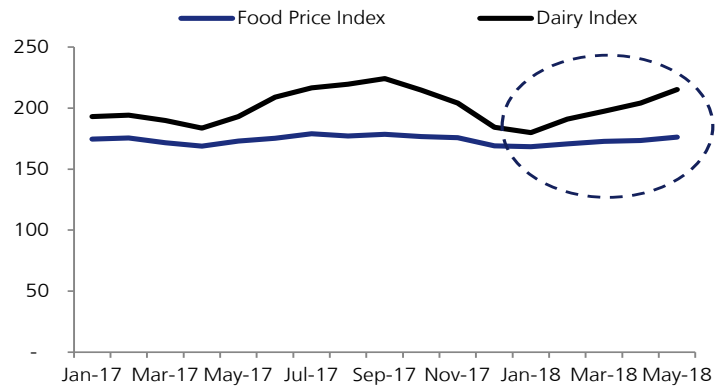
prices have remained in the range of US\$2,000/tn (c.INR140/kg) and near the domestic prices leading to sharp fall in exports volume over the past few years.

Exhibit 7. FAO Price indexes – Dairy Index has improved from 2016 levels, yet to reach 2012-14 levels



Source: FAO, JM Financial

Exhibit 8. FAO price indexes – Past few months have seen improvement in dairy index, sustainability needs to be monitored



Source: FAO, JM Financial

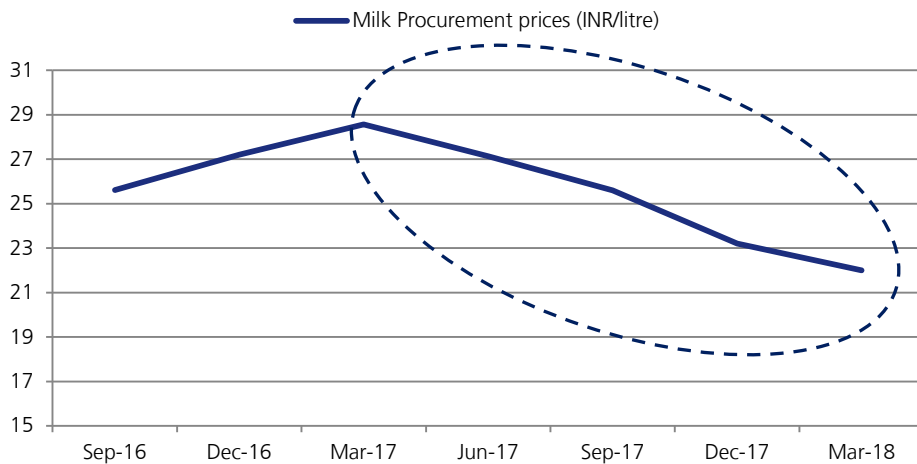
Globally, the dairy price index has shown uptick in the past few months, but a sustained increase is not yet forecasted (Source: FAO).

Is “Milk” economics under any threat due to high production and weak SMP prices?

At present 48% of milk produced in India is either consumed or sold to non-producers in rural areas. The balance 52% of milk produced is available for sale to the consumers in urban centres (marketable surplus), and the organised procurement is still around 40% of this surplus shared almost equally by dairy co-operatives and private dairies.

The prices offered by private dairies are volatile as they immediately adjust for any changes in demand, while co-operative dairies likely try to minimise procurement price declines. Overall pricing procurement for milk has remained weak during the past one year as is reflected in the decline in procurement prices by private dairy players.

Exhibit 9. Milk procurement prices by private players has seen decline in last one year

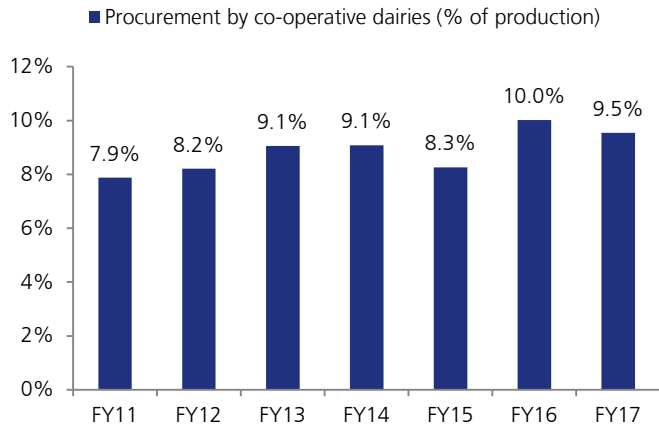


Source: Prabhat Dairy, JM Financial, Note: Procurement Prices in Maharashtra for Cow Milk

Apart from the weakness in pricing from private players, our channel checks and media reports indicate even co-operative dairies are initiating price declines now.

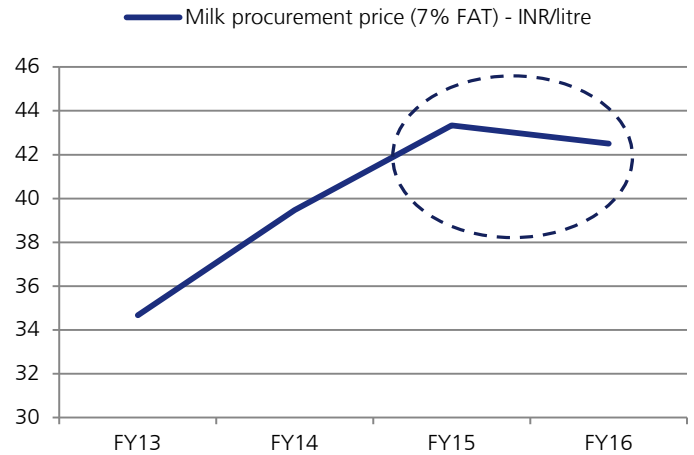
The prime driver for the probable price declines are the healthy production of milk and increase in SMP stocks (75% with Amul and KMF as per media reports). **Just to highlight, earlier during FY16, when the SMP exports had suddenly reduced, Amul had reduced its procurement prices.**

Exhibit 10. Co-operatives had procured 16mn tn of milk in FY17, amounting to c.10% of total production and 20% of marketable surplus



Source: NDDB, JM Financial,

Exhibit 11..historically, even Amul had also reduced procurement prices during FY16 post sudden build-up of inventory

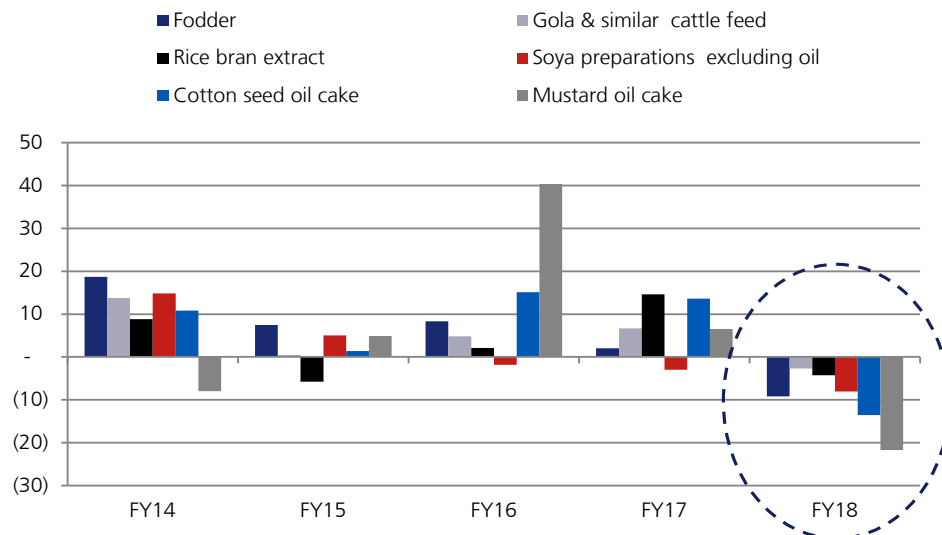


Source: Amul, JM Financial, Note: Prices for 7% fat and 9% SNF (Buffalo Milk)

Income perspective of a farmer – Some states which have higher share from animal related farming revenues

We have done a basic estimate of the break-even (operating) prices for milk production based on our inputs on the ground and industry estimate. The input prices have seen deflation over past 2-3 years given healthy fodder production post the normal monsoons in FY17 &18. In addition, the price declines in crops such as Maize, Soyabean had helped in arresting growth for the cattle feed input prices for farmer and is reflected in the YoY trend in WPI below.

Exhibit 12.Trend in cattle feed prices – Annual increases in Cattle feed prices (WPI – YoY %) has remained subdued on account of price deflation in key ingredients



Source: CMIE, JM Financial

Exhibit 13. Economic model for “Cow” – Annual income

	Units	Value	Comments
Lactation days	days	210	Based on our discussion with industry experts lactation cycle varies from 200-300 days followed by dry period of 60-100 days
Yield	Litres/day	4.4	Average India yield is 3-4lt/day (2015), 3% productivity increase assumed between 2015-18
Milk Produced	Litres/day	918	
Average Milk Price	INR/litre	25	
Revenue from sale of milk	INR	22,947	
Dung revenue	INR	1,825	Production of 5kg of dung a day @ INR1/kg
Total Annual Income	INR	24,772	
Costs			
Feed costs	INR	12,133	Mix of green feed and dry feed assumed based on industry standard
Feed cost per lt	INR	13.2	
Others- vet, Insurance, Labor, Electricity	INR	7,650	
Total expense	INR	19,783	
Net Income	INR	4,990	

Source: CMIE, JM Financial

We have projected a possible revenue statement of a farmer owning one cow and obtaining fodder from own cultivation. The following assumptions were made

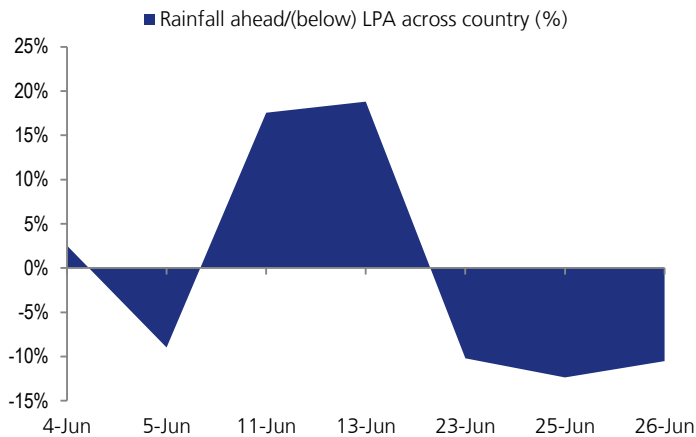
- 5 lactation cycles of 210 days a year
- 1 calf being born and sold every year – the cost of raising the calf is equal to its sale price
- An average yield of 4.3 litres of milk a day

The break-even rate for milk comes out to be INR20/litre under the optimistic assumptions above. It is clear that if the farmer has to procure fodder from outside, the break-even rates would go up to higher levels. **Hence, any decrease in procurement prices from INR20/litre would clearly be negative for profitability for dairy farming (Cow).**

Animal farm income is critical for farmers as it provides a regular stream of income vis. a vis. cultivation income which is lumpy and contingent on irrigation/monsoon.

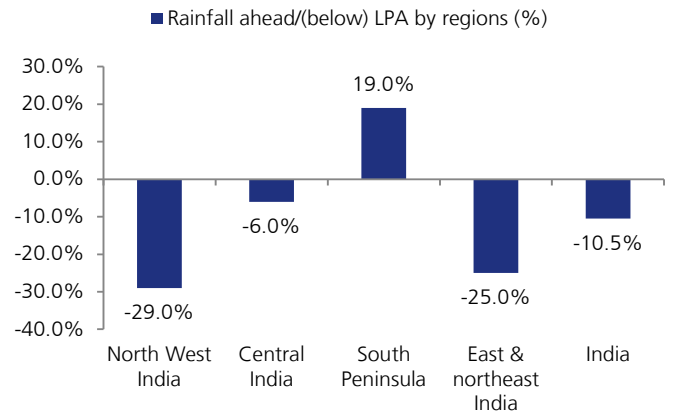
Other updates - Rainfall below LPA so far in June (26 June 2018)

Exhibit 14. Rainfall trend during 2018 – Delayed pick up in rains



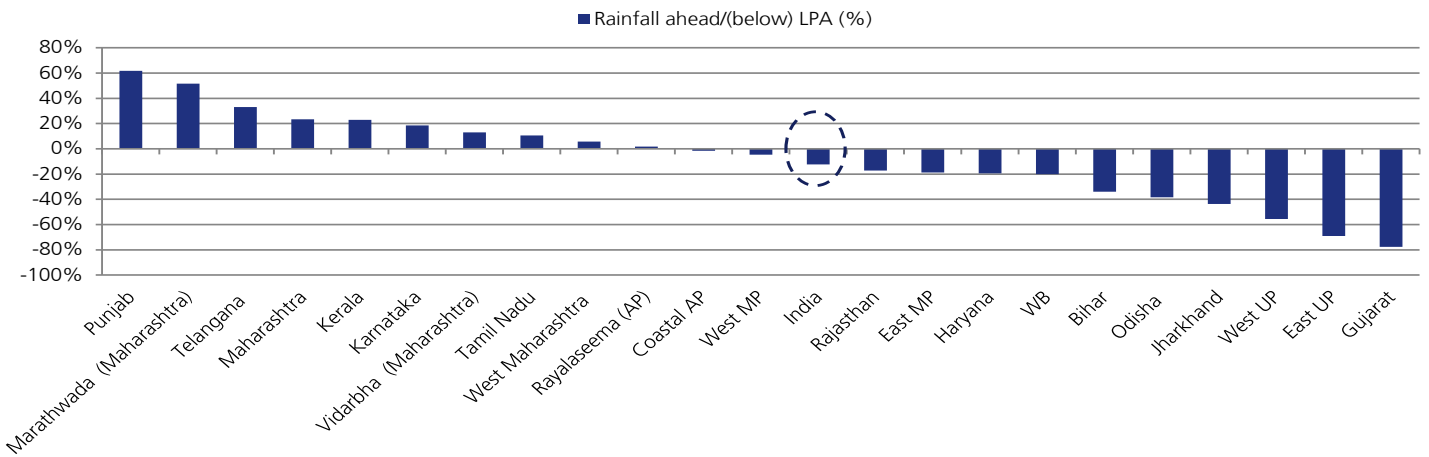
Source: IMD, JM Financial, Note: Data as of June 26, 2018

Exhibit 15. Rainfall by regions – South India has received higher than normal rains so far



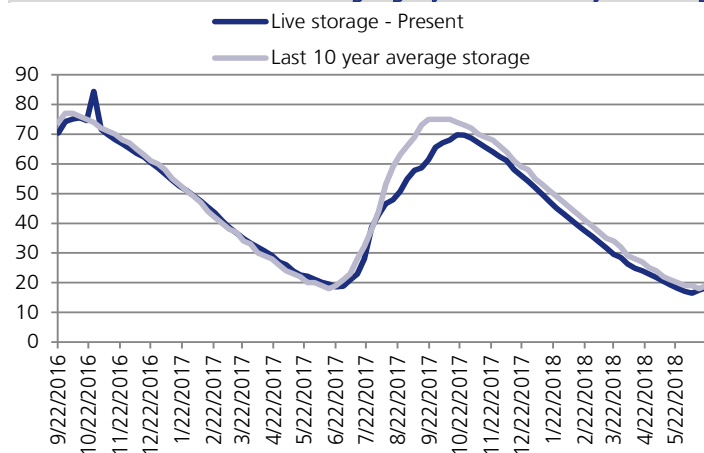
Source: IMD, JM Financial, Note: Data as of June 26, 2018

Exhibit 16. Rainfall distribution by states – Gujarat and UP have seen high deficit rains so far; South Indian states have seen healthy rainfall



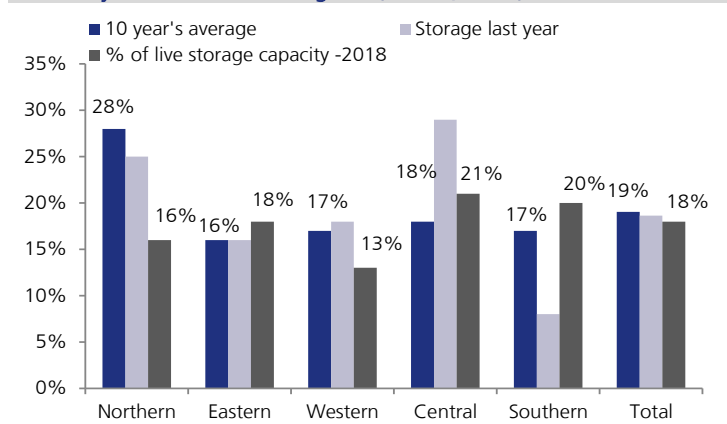
Source: IMD, JM Financial

Exhibit 17. Reservoir levels running slightly below last 10 year average



Source: CMIE, JM Financial

Exhibit 18. Barring South India, reservoir storage levels running below last year levels in most regions (Jun 21, 2018)



Source: CMIE, JM Financial

Kharif sowing tracks monsoon and is running below last year

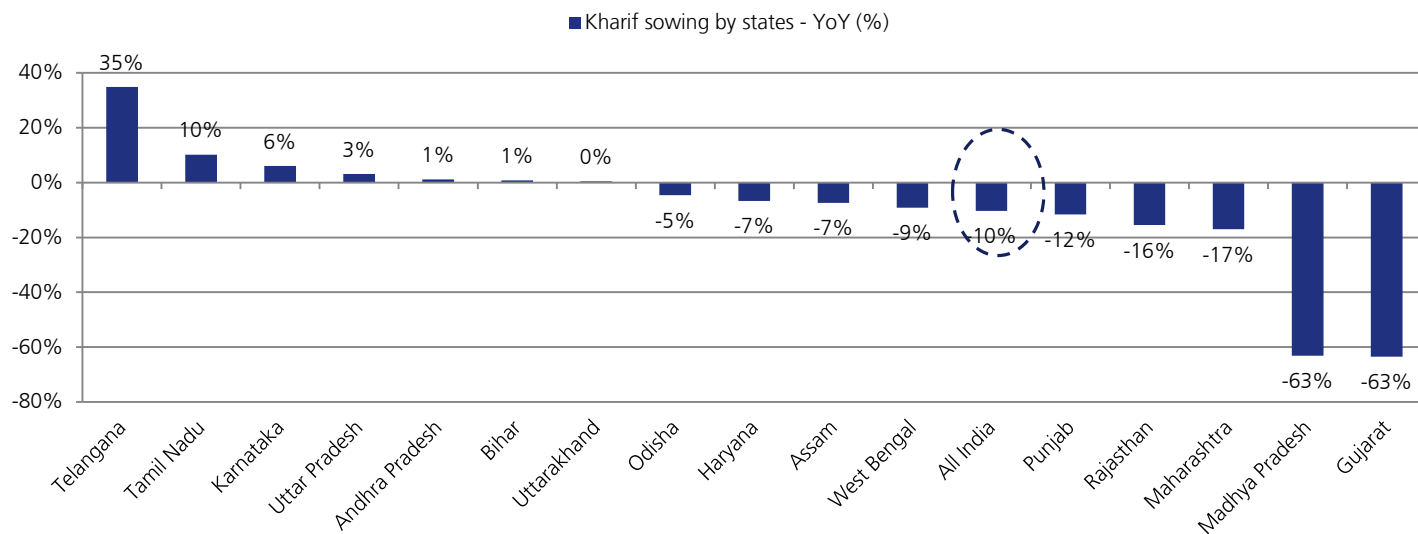
Exhibit 19. Kharif sowing progress till Jun 22, 2018 (completion of 10% of sowing)

Crop	Sown Area (mn hectares)		FY19 sowing progress as compared to		
	Normal Area for the week	FY18	FY19	Previous year	Normal Area
Paddy	0.8	1.1	1.1	-4.5%	26%
Coarse cereals	1.7	1.8	1.7	-9.0%	-2%
Pulses	0.5	0.8	0.6	-24.6%	10%
Oilseeds	0.9	1.0	0.5	-49.4%	-45%
Sugarcane	4.5	4.9	5.0	1.1%	10%
Jute & Mesta	0.7	0.7	0.7	0.0%	-5%
Cotton	3.3	2.5	2.1	-16.3%	-37%
Total	12.5	12.8	11.6	-9.7%	-7.4%

Source: PIB, JM Financial

Sowing has yet to pick-up meaningfully and by June 22, overall sowing was at 11.6mn hectares and down by 10% YoY and 7% from normal levels. However, these are initial period and by this time only c.10% of total sowing takes place. **The decline in sowing is largely on account of delayed sowing in Madhya Pradesh and Gujarat, as farmers await monsoon rains. Among crops, oilseeds (Gujarat & MP) and cotton sowing has been running slow at present from the normal levels.**

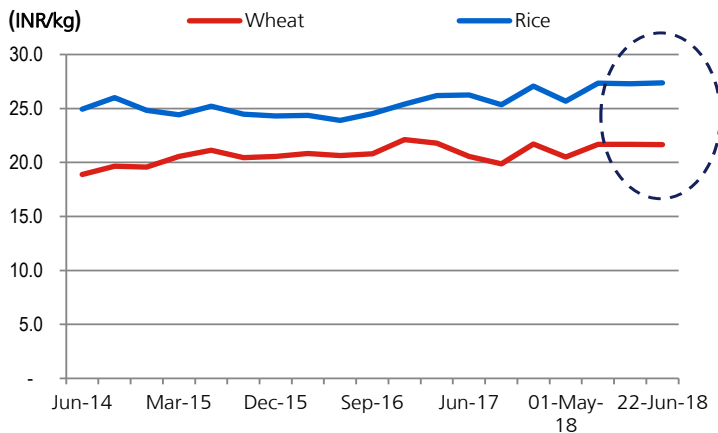
Exhibit 20. Kharif sowing by states – Gujarat and Madhya Pradesh had seen delayed start in kharif sowing



Source: PIB, JM Financial, Note: As on June 22, 2018

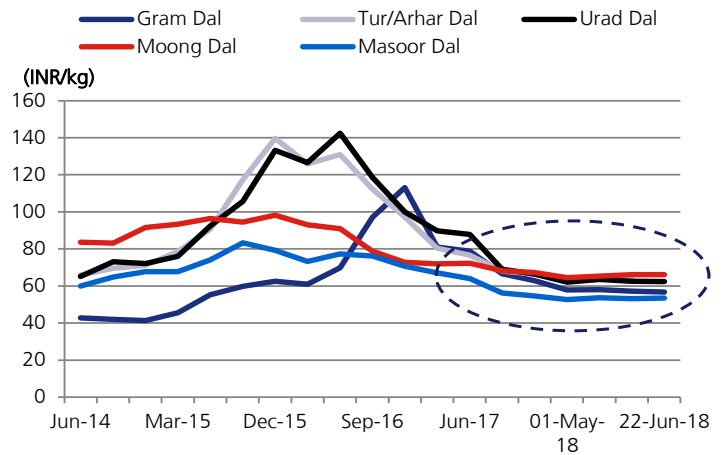
Agri pricing update – Prices remain range bound

Exhibit 21. Cereal prices remain steady



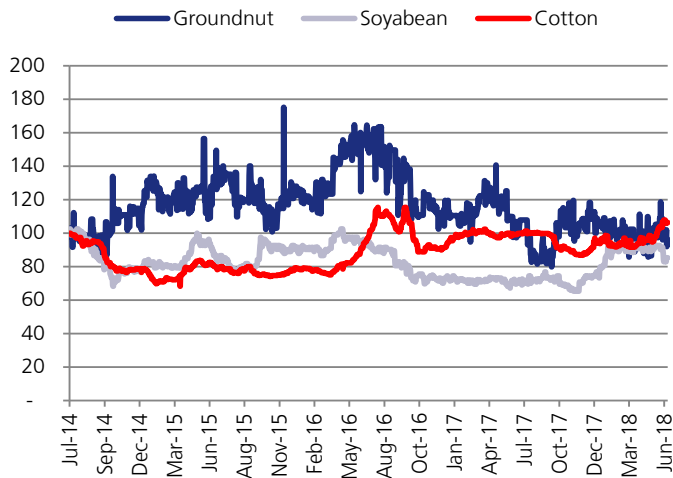
Source: Ministry of Consumer Affairs and PDS, JM Financial

Exhibit 22. Pulse prices continue to remain largely soft



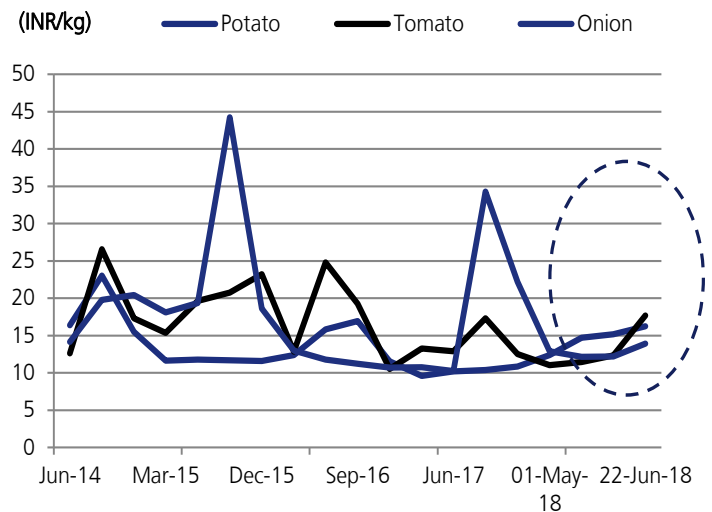
Source: Ministry of Consumer Affairs and PDS, JM Financial

Exhibit 23. Cotton has seen pick-up YoY, and Soyabean prices also saw improvement



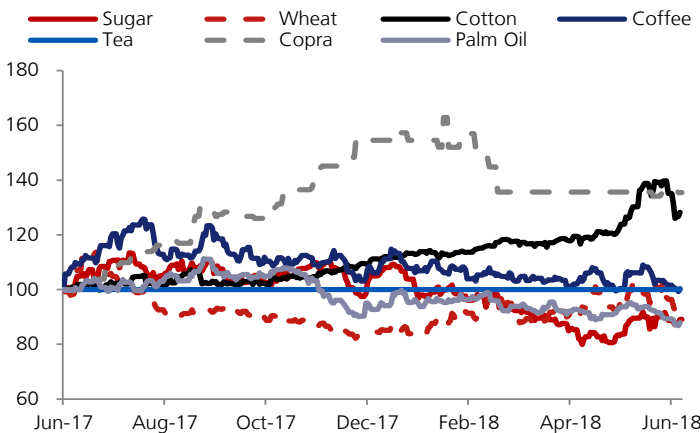
Source: Bloomberg, JM Financial

Exhibit 24. Vegetable prices remain volatile with increase recorded for Tomato crop



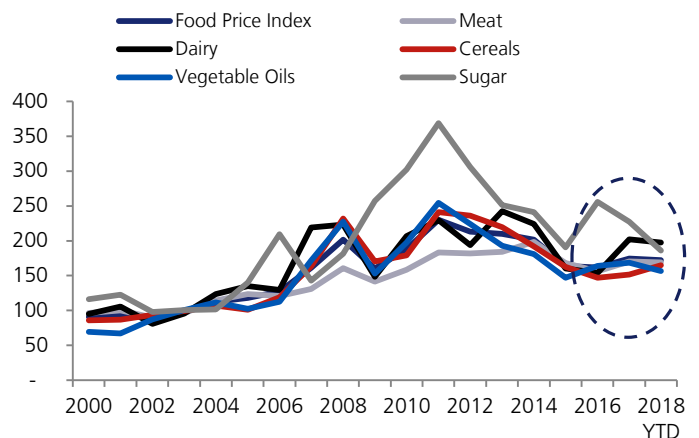
Source: Ministry of Consumer Affairs and PDS, JM Financial

Exhibit 25. Global agri-commodity prices largely in range with some crops such as cotton recording YoY increase



Source: Bloomberg, JM Financial

Exhibit 26. FAO Index – Overall stable from 2017 levels



Source: FAO, JM Financial

JM Model Rural Portfolio

Exhibit 27.JM Model Rural Portfolio

Company	Portfolio weight (%)	JM Rating	CMP (INR)	Mkt Cap (INR bn)	P/E (x)		EPS growth (18-20E) (%)	EV/EBITDA (x)		ROE (%)
					FY19E	FY20E		FY19E	FY20E	
Consumer Discretionary	37									
Mahindra & Mahindra	10	BUY	893	1,147	22.9	19.6	19.7	14.5	12.2	14.9
Maruti Suzuki	8	BUY	8,898	2,579	25.4	21.0	26.1	16.7	13.9	22.4
Hero MotoCorp	5	BUY	3,538	708	16.7	15.0	13.0	11.8	10.5	33.2
Eicher Motors	4	BUY	28,371	839	33.2	25.3	27.8	22.6	17.2	39.0
Havells India	4	BUY	537	340	40.5	33.3	22.2	25.4	20.4	21.0
V-guard Industries	4	BUY	196	94	44.7	34.7	29.4	32.3	25.2	25.0
V-Mart Retail	2	NR	2,547	42	48.0	38.5	19.2	26.5	21.6	22.6
Financials*	25									
M&M Financial	15	BUY	470	301	20.6	16.4	43.1	2.9	2.6	14.9
Cholamandalam Investment	5	BUY	1,574	239	18.7	14.9	28.5	3.8	3.0	22.2
Equitas	5	NR	138	55	31.7	18.9	204.8	2.3	2.0	7.3
Consumer Staples	25									
Hindustan Unilever	10	HOLD	1,609	3,488	57.1	49.2	16.3	39.2	33.5	80.2
Dabur	5	HOLD	392	675	43.0	37.8	14.3	35.9	31.3	25.6
Colgate-Palmolive India	4	HOLD	1,181	343	46.5	40.7	14.1	26.8	23.3	51.4
Britannia Industries	4	BUY	6,088	711	58.4	48.2	21.2	38.4	31.7	31.7
Bajaj Corp	2	BUY	397	70	27.9	23.5	19.2	21.8	18.1	49.3
Agro-chemicals	9									
UPL Ltd.	3	BUY	621	360	15.4	12.2	18.2	9.4	7.6	23.5
PI Industries	2	HOLD	760	117	25.5	20.8	23.8	18.3	15.2	21.8
Coromandel International	2	NR	400	133	17.1	14.2	18.7	11.5	9.9	22.6
Godrej Agrovet	2	NR	610	124	38.6	31.2	31.5	24.4	20.4	26.0
Infrastructure	4									
Finolex Industries	2	NR	575	77	20.5	19.3	14.0	14.1	12.4	14.0
Supreme Industries	2	NR	1,149	162	32.1	26.3	24.5	18.0	15.1	24.5

Source: JM Financial, Bloomberg where not rated (NR), Valuation as of Jun 27, 2018, * - P/B for the Financials

Appendix I

Exhibit 28. Milk Production statistics for the country (FY17)

State	Production (mn Tonnes)	Share of total Production (%)	FY02-FY17 Production CAGR (%)	Per Capita availability by states (gms/day)	Per Capita Availability by states (indexed to national average as 100)
Uttar Pradesh	27.8	16.8%	4.1%	348	98
Rajasthan	20.9	12.6%	6.4%	785	221
Andhra Pradesh (incl. Telangana)	16.9	10.2%	6.9%	522	147
Madhya Pradesh	13.4	8.1%	6.0%	468	132
Gujarat	12.8	7.7%	5.0%	563	159
Punjab	11.3	6.8%	2.2%	1,075	303
Maharashtra	10.4	6.3%	3.4%	243	68
Haryana	9.0	5.4%	3.8%	930	262
Bihar	8.7	5.3%	7.7%	228	64
Tamil Nadu	7.6	4.6%	2.6%	294	83
Karnataka	6.6	4.0%	2.0%	291	82
West Bengal	5.2	3.1%	2.5%	148	42
Kerala	2.5	1.5%	-0.5%	189	53
J & K	2.4	1.4%	3.5%	400	113
Orissa	2.0	1.2%	4.9%	128	36
Jharkhand	1.9	1.1%	4.5%	157	44
Uttarakhand	1.7	1.0%	2.9%	440	124
Chhattisgarh	1.4	0.8%	3.5%	141	40
Assam	0.9	0.5%	1.5%	71	20
All India	165.4	100.0%	4.3%	355	100

Source: NDDB, JM Financial

Exhibit 29. Milk procurement by the Co-operatives (FY17) – 80% of procurement done in states of Gujarat, Karnataka, Maharashtra, Tamil Nadu and Rajasthan

State	Yearly procurement (mn tonnes)	Share of procurement (%)	Production (mn tonne) in the state	Procurement as % of Production in state
Gujarat	6.6	42.7%	12.8	52.0%
Karnataka	2.4	15.4%	6.6	36.4%
Maharashtra	1.2	8.0%	10.4	11.9%
Tamil Nadu	1.1	7.0%	7.6	14.5%
Rajasthan	0.9	6.0%	20.9	4.5%
Bihar	0.6	3.7%	8.7	6.6%
Punjab	0.5	3.5%	11.3	4.8%
Andhra Pradesh	0.5	3.2%	16.9	2.9%
Kerala	0.4	2.5%	2.5	15.5%
MP	0.3	2.1%	13.4	2.4%
Telangana	0.2	1.6%	4.7	5.3%
Odisha	0.2	1.2%	2.0	9.1%
Haryana	0.2	1.1%	9.0	1.8%
UP	0.1	0.8%	27.8	0.5%
Uttarakhand	0.1	0.4%	1.7	3.9%
West Bengal	0.1	0.4%	5.2	1.1%
Jharkhand	0.0	0.2%	1.9	1.7%
Chhattisgarh	0.0	0.2%	1.7	1.7%
Assam	0.0	0.1%	0.9	1.1%
All India	15.5	100.0%	165.4	9.4%

Source: NDDB, JM Financial

APPENDIX I

JM Financial Institutional Securities Limited

(formerly known as JM Financial Securities Limited)

Corporate Identity Number: U67100MH2017PLC296081

Member of BSE Ltd., National Stock Exchange of India Ltd. and Metropolitan Stock Exchange of India Ltd.

SEBI Registration Nos.: Stock Broker - INZ000163434, Research Analyst – INH000000610

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Definition of ratings	
Rating	Meaning
Buy	Total expected returns of more than 15%. Total expected return includes dividend yields.
Hold	Price expected to move in the range of 10% downside to 15% upside from the current market price.
Sell	Price expected to move downwards by more than 10%

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