



## ICRA Rating Feature

This methodology note stands superseded. Refer to ICRA's website [www.icra.in](http://www.icra.in) to view the updated methodology note on this subject.

## Rating Methodology for Entities in the Sugar Industry

This rating methodology updates and supersedes ICRA's earlier published methodology note on the sector. While this revised version incorporates a few modifications, ICRA's overall approach to rating entities in the sector remains materially similar.

The methodology aims to help issuers, investors and other interested market participants understand ICRA's approach to analysing risks that are likely to affect rating outcomes in the sugar industry. This document does not include an exhaustive discussion of all the rating factors that our analysis considers, but provides an overall perspective of the considerations that are usually the most important.

### Overview

India is the largest consumer and the second largest sugar producer in the world after Brazil, accounting for around 15% of the global sugar production. Sugar, the second-largest agro-based industry in India, is a sector of immense significance to the Indian economy. Sugar industry impacts livelihoods of about 50 million farmers and their families, and provides direct and indirect employment to over 2 million people. The growth of the sugar industry in India has been driven by Government regulations, which incentivised the existing units to set up fresh capacities rather than expand existing ones. This has resulted in the creation of a fragmented supply base, with an average installed capacity of 2,500 tonnes crushed per day (TCD), which is considerably lower than the global minimum economic size of 10,000 TCD. While there has been deregulation with respect to distribution of sugar (levy and release mechanism), the industry continues to remain highly regulated in most of the aspects of business ranging from allocation of sugarcane to cane pricing and by-product pricing.

### Rating Methodology

Following are the key rating factors that are assessed to assigning ratings in the sector:

- **Industry Risk Analysis**
  - Agro-climatic risk
  - Regulatory risk
  - Demand-supply dynamics
- **Business Risk Analysis**
  - Scale of operations and level of forward integration
  - Operating risk
  - Cost-structure analysis and efficiency drivers
  - Counter party credit risk (for cogeneration plants)
- **Financial Risk Analysis**
  - Contribution analysis and profitability margins
  - Working capital management, liquidity and inventory valuation
  - Capital structure, leverage and debt coverage indicators
  - Sufficiency of funding availability

- Adequacy of future cash flows
- **Promoters/Management Quality**

## Industry Risk Analysis

### Agro-climatic risk

The sugar industry, being directly dependent on the sugarcane crop and its yield, is susceptible to agro-climatic risks. The climatic conditions and pest-related attacks have a bearing on the cane output, which is the primary feedstock for a sugar producer. Climatic conditions, more specifically, the monsoons influence various operational parameters for a sugar entity, such as the crushing period and sugar recovery levels. Also, the degree of dispersion of monsoon precipitation across the sugar-growing areas also leads to fluctuating trends in sugar production in different regions. In this context, ICRA evaluates the ability of a sugar entity to mitigate such agro-climatic risks, either through access to an established irrigation system in the command area, or a geographical dispersion of capacities, which could serve to reduce the impact of a weak monsoon in a particular area.

### Regulatory risk

The sugar industry is highly regulated, with various Government Acts governing virtually all aspects of the business, which include the availability and pricing of sugarcane, sugar trade and by-product pricing.

**Cane procurement and price:** The procurement of sugarcane by the sugar companies is governed by the Sugarcane (Control) Order, 1966, which stipulates that the mills need to source their sugarcane only from the command area allocated to them. The order also makes it mandatory for the sugar mill to necessarily uplift the entire sugarcane production of the farmer, irrespective of the market demand, which leads to considerable variability in inventory-holding patterns and hence creates demands on a sugar mill's working capital management systems.

Cane prices are controlled by the Government. Currently, there are two cane-pricing regimes in the country- the state-advised price (SAP) regime, announced by state governments and the fair and remunerative price (FRP) regime, suggested by the Commission for Agricultural Costs and Prices (CACP) and announced by the Central Government. Among the major sugar-producing states, Uttar Pradesh, Tamil Nadu, Uttaranchal, Punjab and Haryana follow the SAP regime while Maharashtra, Karnataka, Gujarat and Andhra Pradesh follow the FRP regime. It may, however, be noted that the actual procurement price in case of FRP regime is usually at a hefty premium to FRPs, which is arrived at by mutual negotiations between sugar mills and farmers. The premium is usually determined by the relative bargaining power of the farmers and mills and the prevailing sugar prices. The cane pricing is primarily influenced by political considerations and a lot less by economics and there is limited correlation between cane costs and sugar realisations, especially in the states where the SAP is followed. This results in the high cost of production of sugar for sugar mills, making Indian sugar uncompetitive in the global market, reduces profitability of mills and often endangers the issue of cane price arrears for farmers.

The cane price fixation scenario, however, has been changing and few states (Maharashtra and Karnataka) have been successful in linking of cane costs to sugar realisations as suggested by the Rangarajan panel<sup>1</sup>, while other states where the SAP is followed, the cane costs remain independent of sugar realisations. In Maharashtra and Karnataka, payment of the FRP is made at the beginning of the season and the additional price on the basis of the actual revenue realised is made at the end of the season.

**Sugar trade:** Government intervention exists to control the prices to curb food inflation and stabilise the sugar prices in the domestic market. India uses export and import controls to smoothen the domestic cycles of availability of sugar, and thereby attempts to achieve greater stability in domestic prices for consumers. Policy instruments range from export ban, restriction on use of domestic sugar by bulk consumers, duty-free import quota in scenario of sugar shortage, export incentives for sugar exports and

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<sup>1</sup> Rangarajan panel had suggested that mills pay 70% of the prices of cane and other by-products or 75% of the prices of only sugar to farmers for cane purchases.

levy of import duties in scenario of surpluses. The extent of these measures varies with the demand and supply situation in the domestic market.

**Ethanol-blending programme:** Ethanol, produced from the by-product of the sugar industry viz., molasses, is a plentiful product in the sugar-manufacturing process. The alcohol output from sugar mills is sold as rectified spirit (for industrial uses or as potable alcohol), fuel ethanol (for blending with petrol) or as extra neutral alcohol (to liquor manufacturers). In addition, some sugar mills with the requisite licences also manufacture alcohol as country liquor or as India-made foreign liquor (IMFL). The ethanol-blending programme (EBP), launched in 2002 to promote green fuel and reduce the country's oil import bill, is yet to achieve its target of minimum ethanol blending of 10% with petrol. However, renewed focus of the Government of India on EBP through better pricing policies and various incentives have resulted in increased participation of the ethanol manufacturers and suppliers in the EBP programme, which remains a long-term solution for the cash-starved sugar industry by augmenting sugar mills' revenue and improving their ability to pay sugarcane farmers.

### **Demand-supply dynamics**

The demand-supply situation for sugar is largely determined by supply-side dynamics - sugar industry is subject to periods of surpluses and shortages owing to the cyclical nature of the production while the demand is largely steady and growing, driven by rising consumption in sectors such as confectionaries, sweets and soft drinks which comprise almost 60% of the total consumption of sugar. Due to fluctuations in sugar production, India's sugar status as a net importer/exporter changes frequently.

Earlier, the Government used to control sugar distribution through the monthly release mechanism<sup>2</sup> and the levy system<sup>3</sup>. In April 2013, the Government abolished the monthly release mechanism and also the levy system for subsidised distribution of sugar under the Public Distribution System, thus allowing market forces to come into play.

The sugar industry is highly cyclical as characterised by the cyclic sugar production pattern with typical sugar cycles lasting three-five years, as production adjusts to the fall in prices, which in turn leads to lower supplies, price increase and higher production. The key determinants of the sugar supply in the domestic market for a given sugar season are a) domestic sugar production b) opening sugar stock levels and c) global sugar production and sugar imports. ICRA tracks these factors and assesses the supply situation in the domestic market.

In conditions of over-supply, the threat of imports has been limited due to the high level of import duties on finished sugar, which are within the permissible limits specified by the World Trade Organisation. Also, Indian sugar producers demonstrated limited export capabilities as the high cost of sugar production is uncompetitive in the global market, resulting in dependence on export subsidies from the Government.

In addition to the prevailing supply situation in the market, ICRA also assesses the sugar prices in the near term by taking a view on the expectations on the domestic sugar production for the next sugar season, international supply-demand scenario and sugar prices, and also the Government of India's policy on imports and exports.

## **Business Risk Analysis**

### **Scale of operations and level of forward integration**

Scale of operations for sugar companies is measured in terms of revenues and sales volumes. While the domestic sugar industry is highly competitive and fragmented with organised and unorganised players with a total of 510 mills operational in sugar year (SY)<sup>4</sup> 2016, a larger scale of operations backed by sufficient cane availability results in better cost structure and manufacturing process efficiencies. There are three

<sup>2</sup> Monthly releases given by the government to each mill that determine the quantity of sugar that has to be sold by the mill within the release period.

<sup>3</sup> Levy system – Levy release orders issued by the government under which 10 percent of the mills production was procured by the government for distribution through the Public Distribution System. The levy sugar was procured at the levy price that was set by the government and the price was typically lower than the free market price

<sup>4</sup> Sugar Year is from October to September

important by-products in the sugar industry: molasses, bagasse and press mud. Over the last decade, the sugar industry in India has forward integrated into ethanol/alcohol production from molasses and power co-generation through bagasse, given the substantial value addition in the integration process and the supportive regulatory framework. While revenues from by-products on an average account for 17%-22% of the total revenues for large sugar mills, the percentage contribution from by-products to total operating profits is much higher. ICRA views fully-integrated plants favourably from the credit perspective, given that the distillery and cogeneration segments are relatively insulated from risks that characterise the sugar industry and provide a cushion to the overall profitability during sugar downturn scenarios.

ICRA analyses the operating profile of an entity in terms of its ability to achieve economies of scale and the extent of value addition achievable through its forward integration initiatives.

### **Operating risk**

**Raw material availability:** Access to sugarcane of a certain quality is critical for the operations of a sugar mill, which faces regulatory constraints in accessing sugarcane from outside its command area. The key determinants of sugar production are the cane yields (i.e. cane produced per unit area), length of the crushing season and the recovery rates (i.e. sugar produced per unit cane crushed) which are highly variable across different regions of the country. Availability of sugarcane and the recovery rate in a given command area is dependent on monsoons, access to irrigation facilities, cane variety, yield per acre and ratio of ratoon crop<sup>5</sup> to fresh crop within the command area. Sugar mills in collaboration with farmers undertake various cane developmental activities (such as providing information on the latest technology on cane cultivation to increase yield/acre, supply of sugarcane seed material for better cane variety crop, supply of chemical fertilisers and supply of bio-fertilisers) which also have a bearing on cane availability. However, a farmer's decision on whether to grow sugarcane or alternative cash crops is a function of the relative economics of cane vis-a-vis other crops. This aspect of the business confers considerable amount of bargaining power to the sugarcane farmers.

ICRA assesses the capacity utilisation of the sugar mill, based on the cane crushed and the crushing period. ICRA favourably views healthy capacity utilisation and consistent high recovery rates, which result in better cost structure. Further, availability of cane also results in optimum utilisation of the cogeneration and distillery (forward integration) plants resulting in better profitability as against mills which are dependent on external bagasse and molasses for their forward integrated units.

**Relationship with cane growers:** The nature of the relationship, which a sugar entity shares with the farming community in the command area is a key measure of its operational strength. ICRA evaluates this relationship by looking at the past history of timeliness of cane payments, registration of farmers for cane supply, the area under cane development, trends in cane diversion for other uses, and the nature of allied services provided such as guarantees towards crop loans to farmers and harvesting and transportation loans to support harvesting.

### **Cost structure and efficiency drivers**

The economics of sugar production are critically dependent on five factors:

- 1) The crushing period is dependent on cane availability, which, apart from the agro-climatic risk, is the outcome of relationship with farmers and cane development activities undertaken by the mill. Higher crushing period ensures optimal capacity utilisation levels and hence lower operating costs.
- 2) The size of the plant – while larger size is beneficial, in years of low cane availability and capacity utilisation, high fixed cost may lead to financial strain.
- 3) The pricing of the cane - linkage between cane price and sugar is favourable from the ability of mill to maintain contribution margins.
- 4) Operational efficiency in terms of recovery rates, efficient steam and power consumption norms for manufacturing sugar and ethanol.
- 5) Ability of the sugar entity to generate value through forward integration into the co-generation of power and manufacture of by-products. Cogeneration units of a sugar mill typically sell in preferential tariff mode, given the higher cost of power generation vis-a-vis conventional sources. Tariff under the power purchase agreement, hence, becomes critical for the plant load factor of the

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<sup>5</sup> Ratoon crop is grown from the stubbles of the previous crop

unit, given that a higher tariff improves the ability to operate by purchasing outside bagasse.

### Counter-party credit risk

ICRA evaluates the timeliness of receivables from state-owned power utilities with respect to the cogeneration power plants, given their weak financial position. Ability of the mill to sell power to alternate customers is also evaluated, which is a factor of open access regulations and prevailing scenario of open market for power sale, in any particular state.

### Management Quality

All ratings necessarily incorporate an assessment of the quality of the entity's management, as well as the strengths/weaknesses arising from the entity being a part of a "group". Also of importance are the entity's likely cash outflows arising from the possible need to support other group entities, in case the entity is among the stronger ones within the group. Usually, a detailed discussion is held with the management to understand its business objectives, plans and strategies, and views on past performance, besides the outlook on the (entity's) industry.

Some of the other points assessed are:

- Experience of the promoter/management in the line of business concerned
- Commitment of the promoter/management to the line of business concerned
- Attitude of the promoter/management to risk taking and containment
- The entity's policies on leveraging, interest risks and currency risks
- The entity's plans on new projects, acquisitions, expansion, etc.
- Strength of the other companies belonging to the same group as the entity
- The ability and willingness of the group to support the entity through measures such as capital infusion, if required

### Financial Risk Assessment<sup>6</sup>

Apart from the operational risk profile, the rated entity's financial profile is also an important consideration from a credit perspective. While ICRA believes that the strong operational profile drives strong financial profile in the long term, however, the financial profile of the entity is also governed by the risk appetite and growth plans of the management. Accordingly, while assessing the financial risk profile, apart from the past and the current financial position, ICRA also takes note of the growth plans of the entity and its impact on the financial position in future. The past and the current financial position can be analysed by the financial statements of the entity, financial ratios and suitable adjustments in accounts to align them with accounting principles and also make them comparable for meaningful peer comparison.

#### Profitability

The profitability margins in terms of ratios like OPBDITA/OI (Operating profits before depreciation, interest and amortisation / Operating Income) and PAT/OI (Profit After Tax / OI) are seen in relation to changes in sugar contribution margins. The sugar contribution margin per tonne is a factor of sugar realisation, cane price and recovery rate. While sugar realisation is market driven, cane price is decided by the Government, resulting in volatility in the contribution margins. High recovery rates result in lower cane cost of production when compared to sugar plants of lower recovery rates within the same region. ICRA evaluates the contribution margin of a sugar mill in comparison with other mills in the same region.

Profitability margins also vary across sugar mills, depending on the level of forward integration. Higher OPBDITA margins, because of forward integration (requiring more capital), is also seen in relation to the return on capital employed (RoCE<sup>7</sup>). While the entity may have an OPBDITA margin similar to or better than the industry average, but in case the RoCE is lower, then the reasons for the same are analysed, which can be a lower fixed asset turnover or a longer working capital cycle than the industry average.

<sup>6</sup> Refer to [ICRA's approach for Financial Ratio Analysis](#) for more information on ICRA's assessment of financial ratios

<sup>7</sup> RoCE is defined as profit before interest and taxes / average capital employed for the year

### **Working capital management, liquidity and inventory valuation**

Sugarcane crushing period for majority of the sugar mills is from November – April. Given the seasonality involved in the crushing operations, most of the sugar companies hold sugar inventory varying from 4-6 months as on March-end. The carrying cost of sugar inventory<sup>8</sup> is analysed in relation to realisable value and unrealised gains, if any, or possibility of inventory losses is ascertained.

In addition to the inventory, the level of working capital is also driven by the receivable position with respect to the cogeneration units. Given the working capital intensive nature of operations and seasonality in working capital requirements, the peak working capital requirements are typically much higher for sugar companies than their average working capital requirements. This, coupled with the high leveraging of players in the sector, owing to capex-related incentives and low-cost funding to support cane payments, leading to sizeable repayment obligations necessitates the need for maintaining liquidity to ensure timely repayments. ICRA measures liquidity by comparing fund-based working capital limit utilisation with sanctioned fund-based working capital limits or drawing power, whichever is lower and assessing the cushion, which is available in working capital limits for debt servicing on a consistent basis. The drawing power can be a function of the inventory valuation and hence it is also seen in relation to the realisable value, especially in a declining price scenario.

ICRA also notes that the management plays an important role in inventory stocking levels, hence these can vary from mill to mill. They are governed by the management's outlook on the sugar prices, apart from their funding ability. As a result, the track record of the management in terms of prudent inventory stocking remains a key input to determine the risk appetite of the management.

### **Capital structure, leverage and debt coverage indicators**

Companies that pursue an aggressive financial policy, including heavy reliance on debt financing, are likely to be more vulnerable to cyclical downturns than companies that have a lesser degree of financial leverage in their business. ICRA takes into account the financing pattern of long-term and short-term assets with reference to the entity's long-term and short-term debt.

The sugar business, being both fixed capital as well as working capital intensive, has funding requirements. With the availability of Sugar Development Fund loans for modernisation of sugar plants, the cost of debt funding gets reduced. This incentivises the industry participants to operate at high financial leverage, but at the same time increases the vulnerability to cyclical downturns.

Some of the key indicators observed by ICRA include –

- Leverage indicators: Total Debt/Tangible Net Worth, Total Outside Liabilities/Tangible Net Worth, Total Debt/OPBDITA, Net Cash Accruals/Total Debt
- Debt coverage ratios: Interest Coverage, DSCR

Low leverage improves the financial flexibility of the entity during any downturn, besides keeping the fixed financing expenses low. Moreover, the tenure of the term debt is a key driver for the debt coverage as companies with longer tenure debt and similar levels of leverage will be more comfortably placed as compared to companies with shorter tenure debt.

### **Sufficiency of funding availability**

As the sugar industry is working capital intensive, the working capital requirements increase with revenue growth. While an entity may have DSCR >1 over the projected period; however, despite a satisfactory DSCR, the entities which experience high growth may find themselves stretched on liquidity as their incremental funding requirements may be much higher than the cash generation. In such cases, ICRA analyses the sufficiency of the cash accruals (after meeting scheduled repayment) to fund the targeted growth. The funding requirements can partially be met through additional debt, however, even in such a scenario, the lenders seek at least the margin funding from the borrowers. Hence if the projected levels of cash accruals (after repayments) are lower than the margin funding requirement for capital expenditure and enhanced working capital requirements, then despite a satisfactory projected DSCR, the entity may find

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<sup>8</sup> Inventory majorly comprises of Sugar. Raw material, sugarcane, cannot be stored as it gets dry, loses juice and recovery rate is impacted.

itself stretched on liquidity. In such a situation, the financial flexibility of the entity to fund its growth requirements is seen as an important factor.

### **Adequacy of Future Cash Flows**

Since the prime objective of the rating exercise is to assess the adequacy of the entity's debt servicing ability, ICRA draws up projections on the likely financial position of the entity under various scenarios of cane crushing volumes and contribution margins (which is based on the outlook on cane costs, recovery rate and sales realisations). Besides, ICRA takes into account the entity's commitments towards other group companies and its investments in new ventures.

### **Foreign currency-related risks**

For entities in the sugar industry, the foreign currency-related risk is limited because the revenues and costs are denominated in the Indian rupee. However, they can still have some risks arising because of foreign currency movements due to sugar imports and exports. The focus here is on assessing the natural hedge available as well as the hedging policy of the entity concerned in the context of the tenure and nature of its contracts with clients (short term/long term, fixed price/variable price) to mitigate such risk for the net exposure.

### **Accounting quality**

Here, the accounting policies, notes to accounts and auditors' comments that are part of the annual report are reviewed. Any deviation from the Generally Accepted Accounting Practices is noted and the financial statements of the entity are adjusted to reflect the impact of such deviations.

### **Contingent liabilities/Off-balance sheet exposures**

Sugar entities issue corporate guarantees to banks in respect of crop loans to farmers, and harvesting and transportation loans to certain parties, which provide cane procurement services to the entity. In this case, the likelihood of devolvement of contingent liabilities/off-balance sheet exposures and the financial implications of the same are evaluated.

### **Summing Up**

ICRA's credit ratings are a symbolic representation of its opinion on the relative credit risk associated with the instrument being rated. This opinion is arrived at following a detailed evaluation of the issuer's business and financial risks, its competitive strengths, its likely cash flows over the life of the instrument being rated and the adequacy of such cash flows vis-à-vis its debt-servicing obligations and other funding requirements. The credit profile of sugar companies involves an assessment of the business strength and weaknesses as reflected by their scale of operations, level of forward integration, cost structure and operating efficiencies. The operational strengths are typically reflected in the financial performance; however, the financial risk profile for the entity is also governed by its future growth plans, given the high leveraging in the sector and working capital intensive nature of operations and the ability to fund these.

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