ElaraCapital

# Praj Industries

Global Markets Research

## Setting the TEMPO

**Future ready: huge domestic & global opportunity landscape**

Biofuels have the potential to reduce India's fuel import bill by INR 300bn by FY25, says GoI. This alone should drive the shift toward clean fuels by advancing a 20% ethanol blending with petrol (EBP20) target by five years to CY25-26. Gol expects an ethanol demand CAGR of 30% over FY22-25 to reach 10.2bn liters to achieve 20% blending from 10%. Ethanol capacity is set to rise ~2.0x from 8.2bn liters to 15.0bn liters, translating into a capex opportunity of INR 86bn. Praj Industries (PRJ IN), with a 60% market share in the first-generation (1G ) bioenergy segment, has potential order inflow visibility of INR 40-50bn over the next 3-4 years. Beyond EBP20, bioenergy opportunity is even larger: 1) OMC are to set up 12 second-generation (2G) ethanol biorefineries with an investment of INR 140bn, 2) 5% ethanol blending with diesel and jet fuel will need additional capacity of 5-7bn liters, and 3) 5,000 compressed biogas plants are to be set up by FY24 with capex of INR 2tn. Diversified presence in engineering, brewery and wastewater treatment too is gaining traction. Globally, increased recognition of biofuels in reducing GHG emissions is driving demand for PRJ technology.

**Pole position: cutting-edge technology, services key differentiators**

In FY22, global ethanol production capacity of plants using PRJ technology crossed 11.0bn liters pa, translating into a 10% share of global production. The company is known for its technology, engineering, manufacturing, project management & operations (TEMPO) and has 300 patents filed to date. Customized plant designs comply with global standards. Its in-house tech and strategic alliances with global leaders offer unique customer value propositions.

**Net cash company: robust financials to support growth prospects**

PRJ posted a revenue CAGR of 26% over FY19-22, led by bioenergy segment, strong inflows and domestic traction. As on FY22, orderbook was at INR 29bn with a b-t-b visibility of 1.2x. EBITDA margin rose to 8.3% in FY22 from 7.0% in FY19, led by operational efficiency and a target in the double digits, as steel prices have corrected and exports set to rise. A debt-free balance sheet and lean working capital cycle provide strength to financials.

## Rating: Buy

**Target Price: INR 515**

**Upside: 33%**

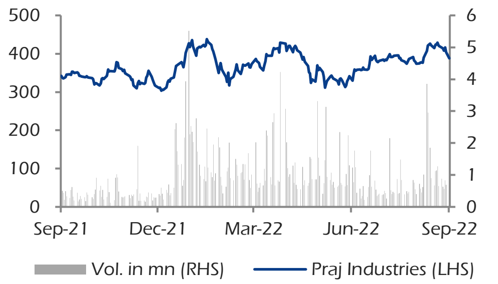
CMP: INR 388 (as on 19 September 2022)

### Key data

| | |
|---|---|
| Bloomberg /Reuters Code | PRJ IN/PRAJ.BO |
| Current /Dil Shares O/S (mn) | 184/184 |
| Mkt Cap (INR bn/USD mn) | 71/894 |
| Daily Volume (3M NSE Avg) | 821,920 |
| Face Value (INR) | 2 |
| **1 USD = INR 79.7** | |

Note: *as on 19 September 2022; Source: Bloomberg

### Price & Volume




Source: Bloomberg

| Shareholding (%) | Q2FY22 | Q3FY22 | Q4FY22 | Q1FY23 |
|---|---|---|---|---|
| Promoter | 32.8 | 32.8 | 32.8 | 32.8 |
| Institutional Investor | 21.9 | 23.4 | 22.7 | 25.9 |
| Other Investor | 11.8 | 11.4 | 9.8 | 8.2 |
| General Public | 33.5 | 32.4 | 34.7 | 33.0 |

Source: BSE

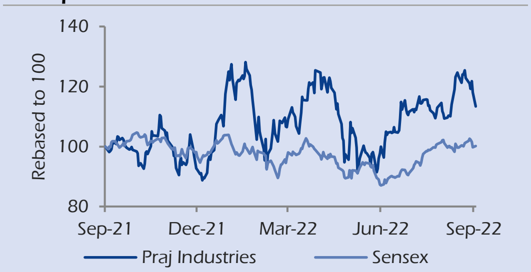
| Price performance (%) | 3M | 6M | 12M |
|---|---|---|---|
| Nifty | 14.8 | 1.9 | 1.3 |
| Praj Industries | 20.5 | 6.4 | 17.7 |
| Triveni Engineering | 31.3 | (13.3) | 65.0 |
| ISGEC Heavy Engineering | 12.2 | (4.9) | (29.6) |

Source: Bloomberg

## Valuation

Praj Industries is a key beneficiary of the global bioeconomic revolution, providing healthy growth visibility over the next 3-5 years. Its key strengths are: 1) market leadership, led by cutting-edge, future-ready technology, 2) diversified global presence along with established client references, 3) healthy orderbook & pipeline, and 4) robust execution & operational efficiency along with a strong balance sheet. We expect a revenue CAGR of 25% over FY22-25E (guidance: 30-40%), an EBITDA CAGR of 31% (target: double-digit margin) and a PAT CAGR of 31% over the same period. We initiate on PRJ with a **Buy** rating and a TP of INR 515 on 28x FY25E P/E at a historical average +1 Standard Deviation.

**Price performance**




Source: Bloomberg

### Key financials

| YE March | Revenue (INR mn) | YoY (%) | EBITDA (INR mn) | EBITDA margin (%) | Adj PAT (INR mn) | YoY (%) | Fully DEPS (INR) | RoE (%) | RoCE (%) | P/E (x) | EV/EBITDA (x) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FY22 | 23,333 | 78.8 | 1,938 | 8.3 | 1,502 | 85.4 | 8.2 | 17.5 | 23.3 | 47.4 | 33.9 |
| FY23E | 29,638 | 27.0 | 2,593 | 8.7 | 2,032 | 35.2 | 11.1 | 20.4 | 26.4 | 35.1 | 25.2 |
| FY24E | 38,729 | 30.7 | 3,486 | 9.0 | 2,704 | 33.1 | 14.7 | 22.7 | 29.1 | 26.3 | 18.7 |
| FY25E | 46,091 | 19.0 | 4,379 | 9.5 | 3,378 | 24.9 | 18.4 | 23.2 | 29.7 | 21.1 | 14.6 |

Note: pricing as on 19 September 2022; Source: Company, Elara Securities Estimate

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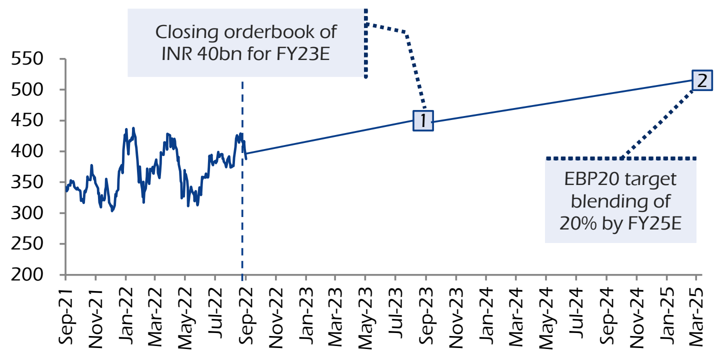
## Valuation trigger



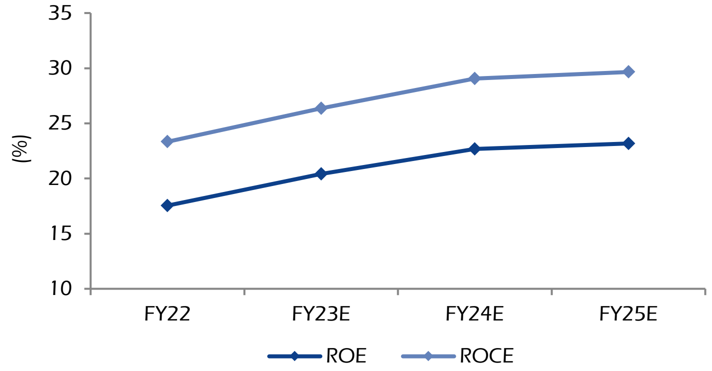

Source: Bloomberg, Elara Securities Estimate

## Valuation overview

| (INR mn) | FY25E |
|---|---|
| PAT | 3,378 |
| P/E (x) | 28 |
| Equity value | 94,576 |
| Shares (mn) | 184 |
| TP per share (INR) | 515 |
| Upside (%) | 33 |

Source: Elara Securities Estimate

## Valuation driver: superior returns on healthy inflows, execution and operational efficiency




Source: Company, Elara Securities Estimate

## Investment summary

- Market leadership in 1G ethanol space along with strong technological edge in the bioenergy segment (71% of overall revenue) to benefit from energy transition
- Known for its technology, engineering, manufacturing, project management and operations (TEMPO) across diversified business segments and geographies
- Strong orderbook and huge domestic & global order inflow opportunity to provide growth visibility
- Strong financials with debt-free balance sheet, superior return ratios and lean working capital cycle

## Valuation trigger

1. Closing orderbook of INR 40bn for FY23E
2. EBP20 target blending of 20% by FY25E

## Key risks

- Delay in new project awarding
- Change in government policies toward ethanol, and sugar & starchy feedstock
- Increase in raw material cost, primarily in steel
- Challenges in global economics could drag exports
- Succession planning post Dr Pramod Chaudhari is yet to be implemented

## Our assumptions

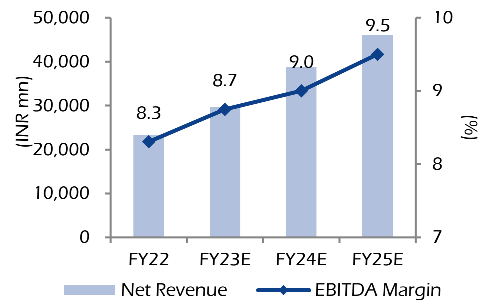
- Revenue CAGR of 25% over FY22-25E, led by 30% growth in the bioenergy segment on the back of robust inflows in FY22 of INR 10bn (90% of total inflows in FY22)
- EBITDA margin to scale up gradually to 9.5% by FY25E from 8.3% in FY22, led by easing off of steel prices and a pickup in exports
- Cumulative order inflows of INR 40bn over FY22-25E

## Consolidated financials (YE March)

| Income Statement (INR mn) | FY22 | FY23E | FY24E | FY25E |
|---|---|---|---|---|
| Net Revenue | 23,333 | 29,638 | 38,729 | 46,091 |
| **EBITDA** | **1,938** | **2,593** | **3,486** | **4,379** |
| Add:- Non operating Income | 362 | 366 | 369 | 373 |
| OPBIDTA | 2,300 | 2,959 | 3,855 | 4,752 |
| Less :- Depreciation & Amortization | 226 | 226 | 226 | 226 |
| **EBIT** | **2,074** | **2,733** | **3,629** | **4,526** |
| Less:- Interest Expenses | 25 | 24 | 23 | 22 |
| **PBT** | **2,049** | **2,709** | **3,606** | **4,504** |
| Less :- Taxes | 546 | 677 | 901 | 1,126 |
| Reported PAT | 1,502 | 2,032 | 2,704 | 3,378 |
| **Adjusted PAT** | **1,502** | **2,032** | **2,704** | **3,378** |
| **Balance Sheet (INR mn)** | **FY22** | **FY23E** | **FY24E** | **FY25E** |
| Share Capital | 367 | 367 | 367 | 367 |
| Reserves | 8,790 | 10,425 | 12,733 | 15,714 |
| Minority Interest | 7 | 7 | 7 | 7 |
| **Net worth** | **9,164** | **10,799** | **13,107** | **16,088** |
| Deferred Tax (Net) | (19) | (19) | (19) | (19) |
| Other non-current liabilities | 318 | 455 | 616 | 710 |
| **Total Liabilities** | **9,463** | **11,235** | **13,703** | **16,779** |
| Net Block | 2,234 | 2,367 | 2,327 | 2,279 |
| Add:- Capital work in progress | 21 | 21 | 21 | 21 |
| Investments | 4,631 | 4,830 | 5,039 | 5,258 |
| Cash & bank balances | 1,551 | 1,642 | 1,591 | 2,587 |
| Net Working Capital | 230 | 1,576 | 3,921 | 5,825 |
| Other Assets | 795 | 800 | 804 | 808 |
| **Total Assets** | **9,463** | **11,235** | **13,703** | **16,779** |
| **Cash Flow Statement (INR mn)** | **FY22** | **FY23E** | **FY24E** | **FY25E** |
| Cash profit adjusted for non-cash items | 1,938 | 2,593 | 3,486 | 4,379 |
| Add/Less:- Working Capital changes | (230) | (1,898) | (3,098) | (2,948) |
| Operating Cash Flow | 1,708 | 696 | 387 | 1,430 |
| Less:- Capex | 280 | 358 | 187 | 177 |
| Free Cash Flow | 1,428 | 338 | 201 | 1,253 |
| Financing Cash Flow | (340) | (413) | (412) | (410) |
| Investing Cash Flow | (862) | 167 | 160 | 154 |
| **Net change in Cash** | **226** | **91** | **(51)** | **996** |
| **Ratio Analysis** | **FY22** | **FY23E** | **FY24E** | **FY25E** |
| **Income Statement Ratios (%)** | | | | |
| Revenue Growth | 78.8 | 27.0 | 30.7 | 19.0 |
| EBITDA Growth | 72.5 | 33.8 | 34.4 | 25.6 |
| PAT Growth | 85.4 | 35.2 | 33.1 | 24.9 |
| EBITDA Margin | 8.3 | 8.7 | 9.0 | 9.5 |
| Net Margin | 6.4 | 6.9 | 7.0 | 7.3 |
| **Return & Liquidity Ratios (%)** | | | | |
| Net Debt/Equity (x) | (0.6) | (0.5) | (0.5) | (0.4) |
| ROE (%) | 17.5 | 20.4 | 22.7 | 23.2 |
| ROCE (%) | 23.3 | 26.4 | 29.1 | 29.7 |
| **Per Share data & Valuation Ratios** | | | | |
| Reported EPS (INR) | 8.2 | 11.1 | 14.7 | 18.4 |
| Adjusted EPS (INR) | 8.2 | 11.1 | 14.7 | 18.4 |
| EPS growth (%) | 84.9 | 35.2 | 33.1 | 24.9 |
| DPS (INR) | 1.8 | 1.8 | 1.8 | 1.8 |
| P/E (x) | 47.4 | 35.1 | 26.3 | 21.1 |
| EV/EBITDA (x) | 33.9 | 25.2 | 18.7 | 14.6 |
| EV/Sales (x) | 2.8 | 2.2 | 1.7 | 1.4 |
| Price/Book (x) | 7.8 | 6.6 | 5.4 | 4.4 |
| Dividend Yield (%) | 0.5 | 0.5 | 0.5 | 0.5 |

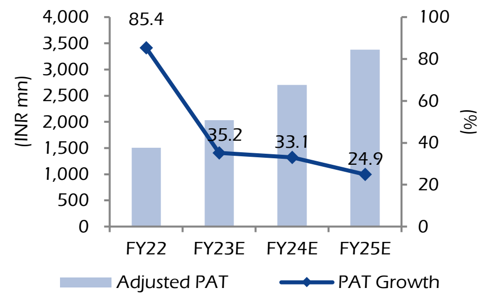
Note: pricing as on 19 September 2022; Source: Company, Elara Securities Estimate

### Revenue & margin growth trend



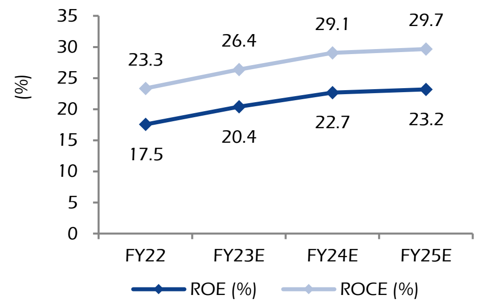

Source: Company, Elara Securities Estimate

### Adjusted profit growth trend




Source: Company, Elara Securities Estimate

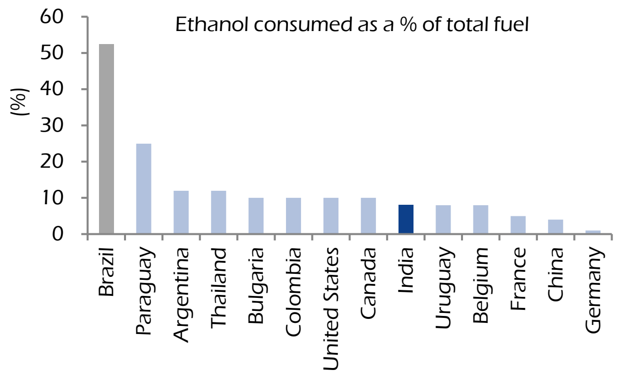
### Return ratios




Source: Company, Elara Securities Estimate

## Macro story in charts

**Exhibit 1: Global ethanol consumption in fuel much higher than in India (CY20)**




Source: Ministry of Petroleum, Government of India, Elara Securities Research

Among biofuels, sugarcane ethanol has the lowest carbon footprint. Brazil commenced production of fuel ethanol in 1975 (Source: ET energyworld.com), and it is currently the world's second-largest producer of ethanol (after the US). At 52.5%, Brazil's ethanol share in total fuel is the highest.

**Exhibit 2: India's EBP20 ethanol demand CAGR of 30% over FY22-25; INR 5.0bn liter yet to tendered out**

| Year | Ethanol demand projection (bn liter) | Blending with petrol (%) |
|---|---|---|
| CY19-20 | 1.73 | 5 |
| CY20-21 | 2.90 | 8 |
| CY21-22 | 4.45 | 10 |
| CY22-23 | 5.42 | 12 |
| CY23-24 | 6.98 | 15 |
| CY24-25 | 9.88 | 20 |
| CY25-26 | 10.16 | 20 |

Source: Niti Aayog, Elara Securities Research

The government has implemented the Ethanol Blended Petrol (EBP) program wherein oil marketing companies (OMC) target is to sell petrol blended with 20% ethanol by FY25. India's current ethanol blending percentage has improved to 10%, led by 1) availability and enhanced scope of feedstock for ethanol production, 2) remunerative prices for ethanol, 3) financial assistance and interest subvention scheme by government, 4) long-term procurement policy, and 5) reduction in the GST rate to 5% from 18%.

Cumulative ethanol demand is expected to be ~13.5bn liters, 10.0bn liters for EBP20 and 3.5bn liters for other industries, such as pharmaceuticals (raw material for manufacturing of syrups), chemicals, cosmetics, alcoholic beverages and exports (Source: Niti Aayog).

**Exhibit 4: Ethanol production capacity required**

| (mn liter) | Fuel ethanol | Other uses | Total |
|---|---|---|---|
| Ethanol supply | | | |
| (A) From sugar sector | 5,500 | 1,340 | 6,840 |
| (B) From grain and maize | 4,660 | 2,000 | 6,660 |
| Total supply | 10,160 | 3,340 | 13,500 |
| Capacity augmentation | | | |
| (mn liter) | Molasses based | Grain based | Total |
| Ethanol capacity | | | |
| Existing ethanol & alcohol capacity | 4,260 (2310 distilleries) | 2,580 (1130 distilleries) | 6,840 |
| Capacity addition from sanctioned projects | 930 (will be added by March,2022) | 0 | 930 |
| New capacity to be added | 2,410 | 4,820 | 7,230 |
| Total capacity required by Nov 2026 to reach 13.5bn liter supply | 7,600 | 7,400 | 15,000 |

Source: Niti Aayog, Elara Securities Research

Based on plant utilization level, total capacity needed to be installed is expected to be 15.0bn liters with 50% sugar-based and the rest grain-based.

**Exhibit 5: Total capacity requirement to grow 2x**

| Year | Capacity requirement (bn liter) | | |
|---|---|---|---|
| | Grain | Molasses | Total |
| CY19-20 | 2.58 | 4.26 | 6.84 |
| CY20-21 | 2.60 | 4.50 | 7.10 |
| CY21-22 | 3.00 | 5.19 | 8.19 |
| CY22-23 | 3.50 | 6.25 | 9.75 |
| CY23-24 | 4.50 | 7.25 | 11.75 |
| CY24-25 | 7.00 | 7.30 | 14.30 |
| CY25-26 | 7.40 | 7.60 | 15.00 |

Source: Niti Aayog, Elara Securities Research

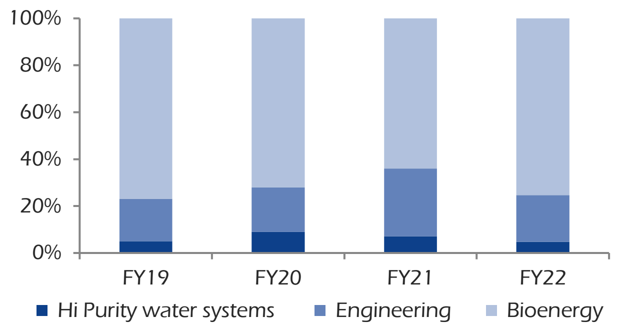
**Exhibit 3: Ethanol production projections**

| (bn liter) | For blending | | | Blending | For other uses | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Grain | Sugar | Total | (in %) | Grain | Sugar | Total | Grain | Sugar | Total |
| CY19-20 | 0.16 | 1.57 | 1.73 | 5.0 | 1.50 | 1.00 | 2.50 | 1.66 | 2.57 | 4.23 |
| CY20-21 | 0.42 | 2.90 | 3.32 | 8.5 | 1.50 | 1.10 | 2.60 | 1.92 | 4.00 | 5.92 |
| CY21-22 | 1.07 | 3.30 | 4.37 | 10.0 | 1.60 | 1.10 | 2.70 | 2.67 | 4.40 | 7.07 |
| CY22-23 | 1.23 | 4.25 | 5.42 | 12.0 | 1.70 | 1.10 | 2.80 | 2.93 | 5.35 | 8.28 |
| CY23-24 | 2.08 | 4.90 | 6.98 | 15.0 | 1.80 | 1.10 | 2.90 | 3.88 | 6.00 | 9.88 |
| CY24-25 | 4.38 | 5.50 | 9.88 | 20.0 | 1.90 | 1.10 | 3.00 | 6.28 | 6.60 | 12.88 |
| CY25-26 | 4.66 | 5.50 | 10.16 | 20.0 | 2.00 | 1.34 | 3.34 | 6.66 | 6.84 | 13.50 |

Source: Niti Aayog, Elara Securities Research

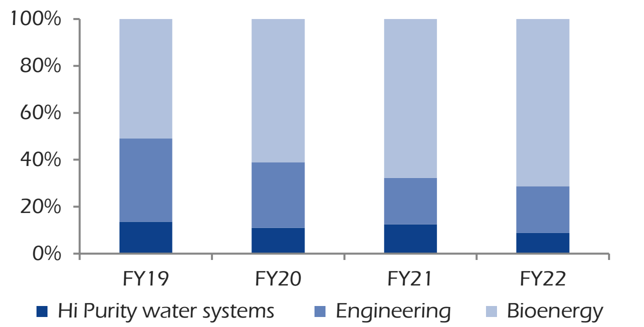
## Story in charts over FY19-22

**Exhibit 6: Bioenergy segment contributes three-quarters of total orderbook**



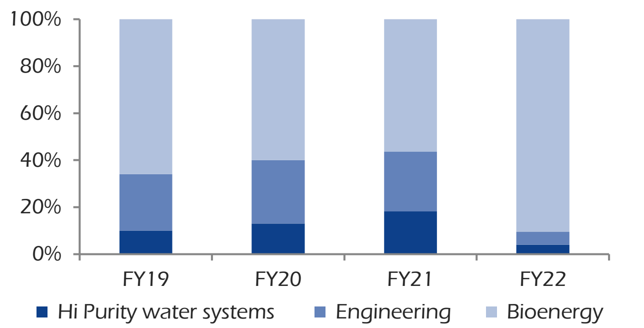

Source: Company, Elara Securities Research

**Exhibit 7: Share of bioenergy in revenue rises to 71% from 51% in the past four years...**



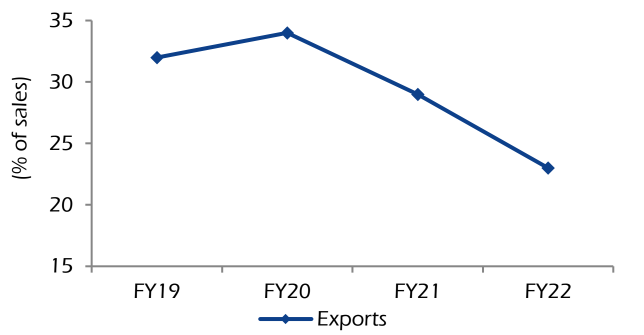

Source: Company, Elara Securities Research

**Exhibit 8: ...led by strong inflows in the bioenergy segment, a key driver**



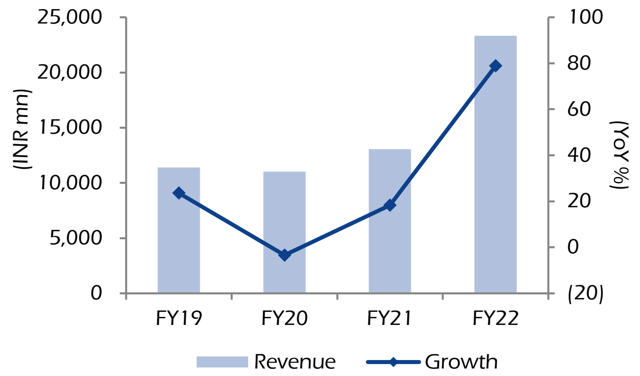

Source: Company, Elara Securities Research

**Exhibit 9: Share of exports down on global challenges**



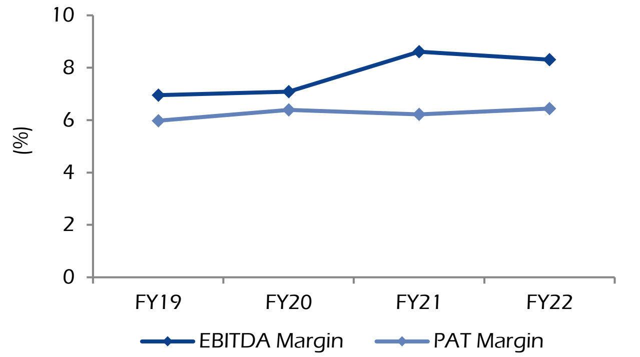

Source: Company, Elara Securities Research

**Exhibit 10: Revenue CAGR of 26% over FY19-22**



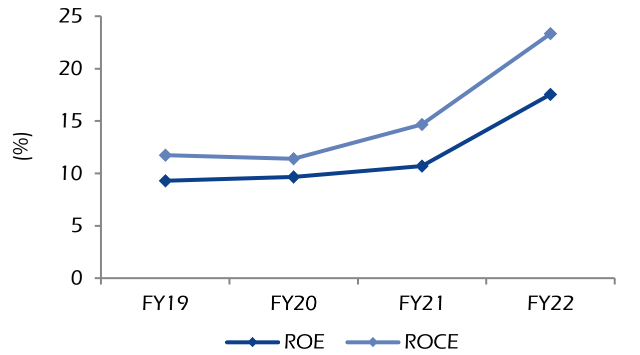

Source: Company, Elara Securities Research

**Exhibit 11: EBITDA margin up 135bp over FY19-22**



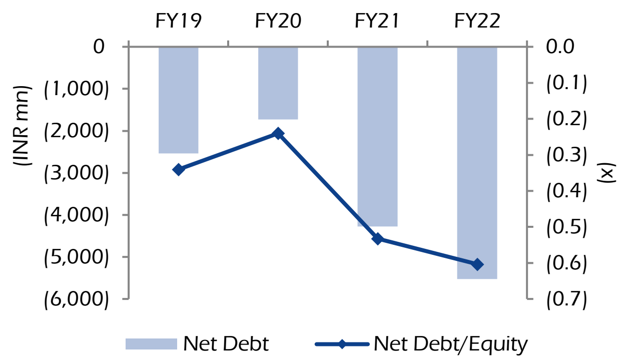

Source: Company, Elara Securities Research

**Exhibit 12: ROCE doubles during FY19-22**




Source: Company, Elara Securities Research

**Exhibit 13: Net cash balance sheet**




Source: Company, Elara Securities Research

# Key beneficiary of global green energy push

- **Future ready: huge domestic opportunity and revival in international demand**
- **Pole position: cutting-edge technology and services to sustain leadership**
- **Net cash company: strong financials, softening in material prices to improve profitability**

## Future ready

### Huge domestic market; revival in global demand

- EBP20 program (opportunity size of ~INR 86bn): India currently has total ethanol production capacity of 8.5bn liters, which includes 5.7bn liters based on sugary feedstock and 2.8bn liters based on starchy feedstock, such as rice, wheat, barley and corn (Source: PRJ annual report over 2021-22). Currently, ethanol blending in petrol in India has reached ~10% mark. India needs production capacity of 15bn liters, which implies an installed capacity of 19bn liters to achieve the targeted E20 program (20% blending of ethanol in petrol). Around 196 grain-based ethanol projects amounting to ethanol production capacity of ~8.6bn liters have received statutory approvals

  One Greenfield capacity costs ~INR 10mn per kilo liter, which translates into an opportunity of INR 86bn. This could translate into a potential order inflow of INR 30-40bn based on a 60% market share. To give further encouragement for diverting excess sugar to ethanol, the government has hiked the price of ethanol extracted from sugarcane by INR 1.47 per liter over CY21-22 and introduced an additional differential excise duty of INR 2 per liter on unblended fuel to incentivize ethanol blending. It has lowered the GST rate to 5% on ethanol. The Department of Food & Public Distribution (DFPD) has announced availability of 17mn tonne of surplus grains, which can be used to produce ethanol

- Beyond EBP20, opportunity to be even larger: The ethanol industry outlook remains positive beyond accomplishing the EBP20 target. PRJ's 2G bioethanol refinery recently commissioned at IOCL Panipat in Haryana is Asia's first-of-its-kind facility, which processes rice straw as feedstock for ethanol production. Spread over 35 acres, this refinery is capable of processing 200,000 tonne of rice straw annually to generate 30mn liters of ethanol using PRJ's 2G *Enfinity* technology. This technology will help address challenges of stubble burning, reduce $CO_2$ emissions, save forex of INR 550-600mn annually and push the *Make in India* initiative.

  Various OMC are setting up 2G ethanol biorefineries, and the Ministry of Petroleum & Natural gas has approved financial support of INR 20bn until FY24 for 12 integrated bioethanol projects planned to be set up with an investment of INR 140bn

- Several policy measures also under discussion include 1) diesel-blending program across Indian Railways, stationary engines (including telecom towers) and automotive (average diesel consumption for the past five years of 80bn litres, assuming 5% blending translates into capacity potential of 4.0-5.0bn liters). Ethanol has already passed the BS IV levels tests and is awaiting BS VI norms approval, and 2) sustainable aviation fuel (SAF), which is likely to become mandatory by CY27 (average jet fuel consumption for the past five years of 7bn liters assuming 5% blending translates into capacity potential of 0.3bn liters). This is likely to drive sustainable demand of ethanol beyond CY25. At full potential, these combined opportunities would be even bigger than EBP20 program

- Introduction of flex fuel engines with EBP 85 or EBP 100 could be way forward to further reduce carbon emissions intensity

- Compressed biogas (CBG) as an alternative to CNG has been receiving favorable response from consumers, due to government promoting it as an alternate green fuel and increased rural household income. OMC are gearing up to distribution and retail for last-mile connectivity of CBG. The government plans to set up 5,000 CBG plants by FY24 with a production target of 15mn tonne and capex of INR 2tn. The RBI has included CBG in the priority sector lending framework. CBG projects see enhanced financial viability post the recent revision in prices by the government to INR 54/kg from INR 46/kg

### Widening scope in engineering and hi-purity segments

- Brewery: The hospitality and tourism sectors are slowly picking up pace, leading to a boost in beer consumption, which is reaching pre-COVID levels. With this, brewery companies are considering Greenfield projects and looking to accelerate new product launches in flavored & non-alcoholic beer (NAB) categories. We expect business to return to normalcy over the next 12 months

- Industrial effluent treatment, recycling & zero liquid discharge systems: There are robust enquiries and repeat orders in industrial effluent treatment, recycling and zero liquid discharge (ZLD) systems in sectors, such as metals, power, specialty chemicals, fertilizers, refinery & petrochemicals, and F&B, which have high water intensity. According to Niti Aayog, India's water treatment plant market stood at USD 2.4bn in 2019 and is projected to reach USD 4.3bn by 2025, owing to increased demand for municipal water, gap in investment in the sector, and climate change

- Critical process equipment and Skids (CPES): Revenue has been inching up in the past few quarters and management believes growth is sustainable in the CPES segment, which is gaining from the global energy transition from high into low to no carbon fuels. This segment caters also to the green hydrogen segment by partnering with global leaders for engineering and manufacturing capabilities. This is primarily an exports-oriented business

- Hi-purity: Revenue has been flat for the past two quarters, due to low capex in the pharma sector. However, it is improving particularly on the fermentation side. The company is planning to expand its product basket in this space

**Scope for expanding geographical footprints**

- There is increasing recognition of the important role biofuels plays in reducing GHG emissions. There is good momentum for setting up new capacity for ethanol production in the international markets. With the first breakthrough order from Brazil for 1G commissioned and a strong local partnership, the company is making inroads into Brazil's starchy, feedstock-based ethanol market. Several countries from Latin America also are witnessing increased demand for ethanol. There is a strong traction in enquiries building up for low carbon ethanol from the market with several projects commissioned in North America. Other countries are considering enhancing the share of biofuels in their energy mix

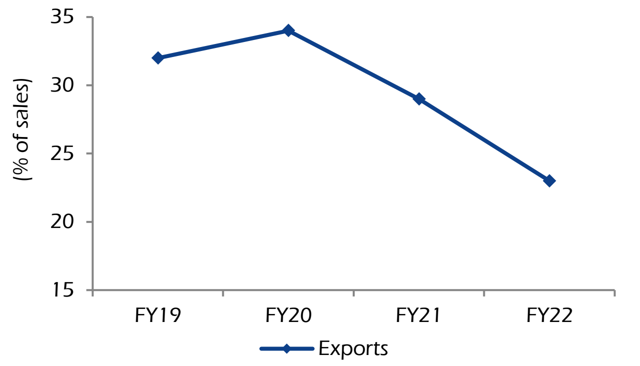
- Europe plans to add ~50 2G ethanol plants with capacity of 2.8bn liters by CY30. 55 projects have been planned over the next 5-7 years

- Brazil also plans to install 1G, corn-based ethanol plants, which provide an opportunity of INR 5.0bn liters over the next five years. This is in addition to E27 and flex fuel policy operating in the country

- North and South America also show good traction in the near term as there is a push for low carbon intensity ethanol

- Most new orders are repeat ones from existing clients or inbound requests from new clients through references. PRJ has diversified presence across 100 countries in five continents with 1,000+ references and experience of four decades

**Exhibit 14: Share of exports in revenue declines due to COVID-related challenges but it is expected to pick up**




Source: Company, Elara Securities Research

## Pole position

**Tech, service quality to sustain leadership**

During FY21-22, ethanol production capacity worldwide in plants using PRJ's ethanol technology has crossed 11bn liters annually (Source: PRJ annual report over 2021-22). This translates into a 10% share of global ethanol production, excluding China. Also, in the 1G domestic bioenergy market, the company has a leadership position with a 60% market share. Nearly 40% of the business comes from repeat customers. The company has 28 Indian patents granted & 68 international patents granted and over 300 patent applications to date.

PRJ's customer base includes Adani Solar, Indian Oil, Heineken, Deepak Fertilizers, SAB Miller, Bajaj Hindustan, UB Group, Biocon, Procter & Gamble, Ranbaxy, Lupin, and BASF. Even in the brewery segment, PRJ has a 70% market share in India while the hi-purity segment's market share is 35-40% as on FY22.

**Differentiated technology contribution to the world**

PRJ's expertise is in understanding various feedstocks, creating a technology and process to transform it into an end product – either for bio-mobility or renewable chemicals & materials (RCM) – and also provide solutions for efficient operations and maintenance of the plant.

- Biomobility technology platform: The biomobility platform of technology solutions utilizes biological resources to produce low carbon renewable transportation fuels in liquid as well as gaseous form, such as sustainable aviation fuel (SAF) and biohydrogen. The transportation sector is one of the largest emitters of GHG, which the platform already addresses in the domestic market; there is healthy growth potential globally for deeper penetration

- The bioprism technology portfolio for the production of renewable chemicals and materials (RCM) was developed in July 2020. It focuses on bioplastics, a sustainable solution to replace single-use plastics. These products have applications in industries, such as automotive, packaging, furnishing, construction, agriculture and food. Renewable chemicals have the potential to replace most chemicals that are currently sourced using fossil resources.

- Biosyrup: The company has launched an innovative solution to process sugarcane juice into a new sustainable feedstock, *Biosyrup*, for around-the-clock ethanol production. Sugarcane juice is a perishable and seasonal feedstock that cannot be stored for more than 24 hours without loss of sugar. However, if converted into conditioned *Biosyrup*, it can be stored for up to 12 months without contamination. This enables sugar mills to produce ethanol beyond the sugar season, thereby helping increase production capacity and maximize revenue. The unique technology solution also is attracting attention globally, especially from Brazil

- Rengas technology: It is technology developed by the company by using rice straw, agricultural residue and press mud to produce cost-effective compressed biogas to be used as a replacement for natural gas

**Customized and superior quality services to industrials**

- State-of-the-art R&D facility: The Praj Matrix R&D Centre at Pune is developed with a USD 25mn investment. It is an 80,000-sqft unit housing labs, pilot plants & offices with a strength of 90 experts, comprising with doctorate degrees and technologists. In addition to its own technology, PRJ has built strategic collaboration with global technology leaders in codeveloping and integrating complementary technologies to create customer-centric value propositions

- International standard manufacturing facilities & global references: The company's solutions are supported by world-class manufacturing facilities at Pune, Maharashtra, Wada near Mumbai and Kandla in Gujarat. Equipment engineering and fabrication is in accordance with international standards and codes

- Key features of projects: Some features of PRJ projects include customized plant designs complying with regulatory framework with industry's highest yield, economical and low maintenance cost. They are commercially sound and environmentally friendly projects with high IRR and low payback periods. PRJ can handle complete turnkey, EPC plant & technology supply with O&M options.

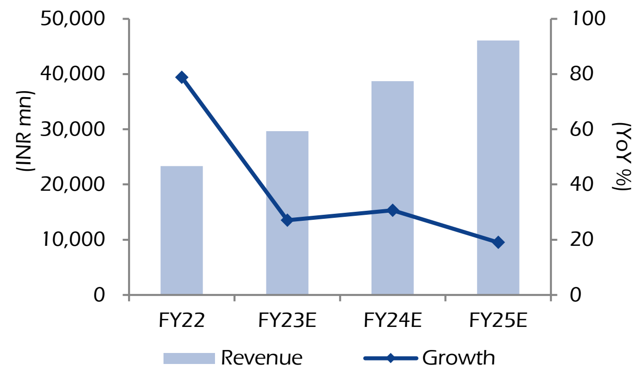
## Strong financials

**Softening in material prices to improve profitability**

PRJ's claim to fame is its technology, engineering, manufacturing, project management and operations (TEMPO). Strong orderbook of INR 29bn as on FY22 would help scale up execution. The average execution cycle is 12-30 months across segments. In an order, construction cost is usually 20-25% and bought out components is ~30-35% of total cost. The company's edge is technology implementation, engineering and project management & operations.

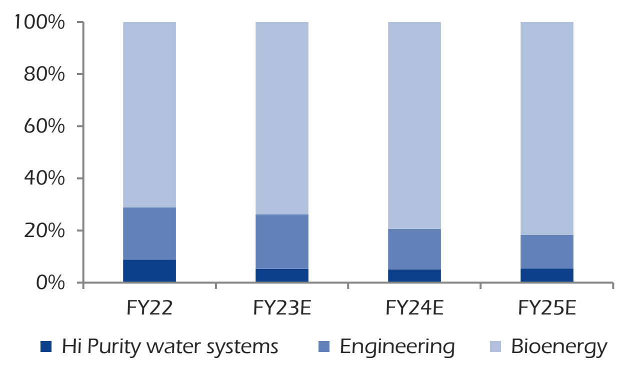
Recently, debottlenecking of some operations has helped improve execution and capacity utilization. There is no issue on capacity to execute as business seasonality is down with better availability of feedstock.

**Exhibit 15: Revenue CAGR of 25% over FY22-25E**



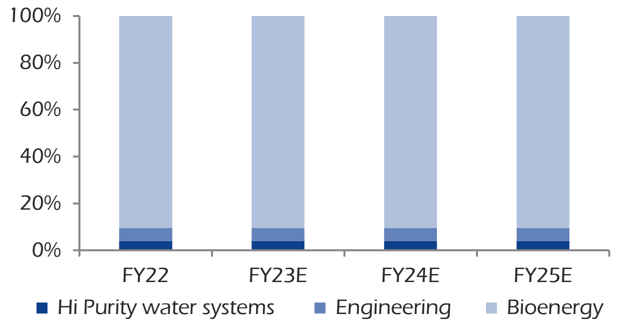

Source: Company, Elara Securities Estimate

**Exhibit 16: Revenue mix to remain skewed toward the bioenergy segment with a sales CAGR of 31%...**



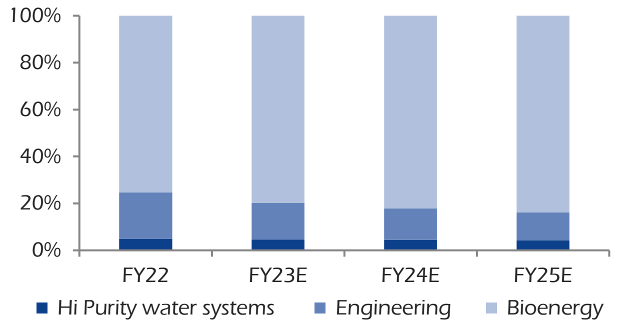

Source: Company, Elara Securities Estimate

**Exhibit 17: ...led by healthy order inflows on huge opportunity in the bioenergy segment**



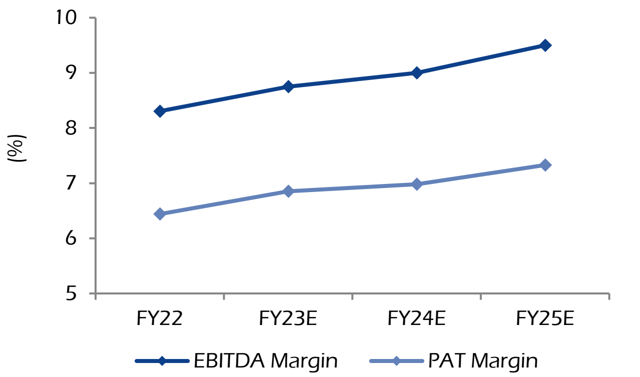

Source: Company, Elara Securities Estimate

**Exhibit 18: ...and orderbook visibility across segments**




Source: Company, Elara Securities Estimate

**Exhibit 19: EBITDA margin to expand as steel prices (60% of cost) is off peak, push in exports projects**




Source: Company, Elara Securities Estimate

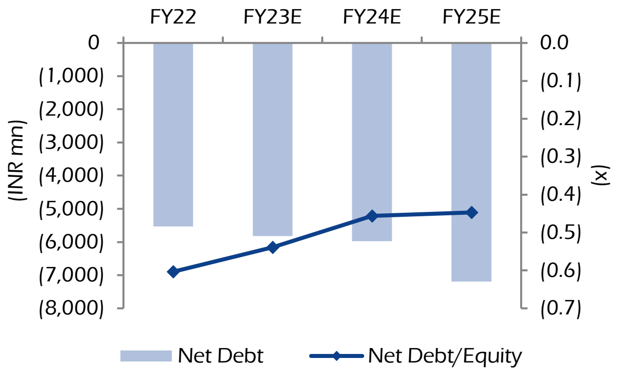
**Exhibit 20: Steel prices off-peak from March 2022**


Source: SteelMint, Elara Securities Research

**Share of international orders to improve margin**

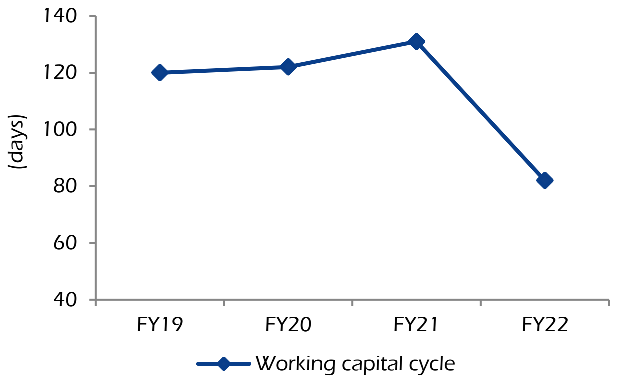
Nearly 80% of orders are on fixed price contracts. However, new projects are coming in with better margin; hence, we expect margin to improve once execution on new orders picks up. In addition, expected increase in share in international orders with better margin should improve profitability.

**Exhibit 21: Net cash balance sheet**



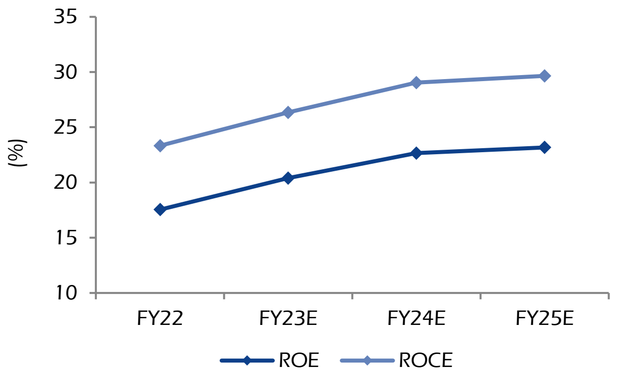

Source: Company, Elara Securities Estimate

**Exhibit 22: Lean working capital cycle**




Source: Company, Elara Securities Research

**Exhibit 23: Return ratios expected to improve**




Source: Company, Elara Securities Estimate

Industrials

# Trend-setter

- **Key beneficiary of shift in global focus toward reducing carbon emissions**
- **Revenue CAGR of 25% and an earnings CAGR of 31% over FY22-25E**
- **Initiate Buy with a TP of INR 515, implies 33% upside**

## Key beneficiary of bioeconomic trend

PRJ is a key beneficiary of tailwinds from the global bioeconomic revolution, providing a healthy growth visibility over the next 3-5 years. Its key strengths are 1) market leadership led by cutting-edge, future-ready technology, 2) diversified global presence across segments along with established client references, 3) healthy orderbook & pipeline, and 4) robust execution & operational efficiency along with a strong balance sheet.

## Sales CAGR of 25%; PAT CAGR of 31%

We expect a revenue CAGR of 25% over FY22-25E, led by the bioenergy segment as the government focus remains on alternate energy fuel. EBITDA CAGR of 31% during the same period would be led by operational efficiency, pickup in the high margin exports segment and softening material prices. We expect a PAT CAGR of 31% on the back of working capital management.

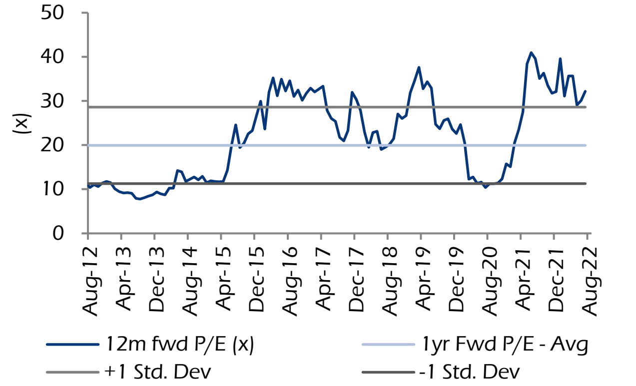
## Initiate Buy with a TP of INR 515

We initiate coverage of PRJ with a **Buy** rating and a TP of INR 515 based on 28x FY25E P/E, which is at a historical average of +1 standard deviation. Our TP implies 33% upside from the current levels.

### Q1FY23 performance

Consolidated revenue was up 89% YoY to INR 7.3bn with an EBITDA margin of 7.7%, dragged due to an unfavorable mix and high material prices. PAT at INR 413mn was up 6% YoY. Order inflow stood healthy at INR 11bn despite global inflation and challenges, led by the bioenergy and CPES segments. Orderbook as on 30 June 2022 stood at INR 32bn, providing a book-to-bill visibility of 1.2x.

**Exhibit 26: One-year forward historical average +1 standard deviation P/E of 28x**




Source: Bloomberg, Company, Elara Securities Research

**Exhibit 27: Valuation overview**

| (INR mn) | FY25E |
|---|---|
| PAT | 3,378 |
| P/E (x) | 28 |
| Construction business | 94,576 |
| Shares (mn) | 184 |
| Value per share (INR) | 515 |
| Upside (%) | 33 |

Source: Elara Securities Estimate

**Exhibit 24: Peer valuation**

| Company | Ticker | Rating | Market cap (INR bn) | CMP (INR) | TP (INR) | Upside (%) | ROE (%) | | | P/E (x) | | | P/B (x) | | | EV/EBITDA (x) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FY22 | FY23E | FY24E | FY22 | FY23E | FY24E | FY22 | FY23E | FY24E | FY22 | FY23E | FY24E |
| Praj Industries | PRJ IN | Buy | 71 | 388 | 515 | 33 | 17.5 | 20.4 | 22.7 | 47.4 | 35.1 | 26.3 | 7.8 | 6.6 | 5.4 | 33.9 | 25.2 | 18.7 |
| Thermax | TMX IN | Reduce | 284 | 2,557 | 2,130 | (16.7) | 9.3 | 11.9 | 15.0 | 69.9 | 65.6 | 48.6 | 6.6 | 7.7 | 6.9 | 53.3 | 47.7 | 35.1 |
| Triveni Engineering & Indus | TRE IN | NR | 70 | 278 | NR | - | 24.5 | 23.3 | 23.0 | 17.7 | 13.2 | 11.1 | 3.9 | 3.0 | 2.5 | 14.3 | 11.0 | 9.5 |
| ISGEC Heavy Engineering | IGSEC IN | NR | 39 | 534 | NR | - | 6.5 | 8.1 | 9.4 | 33.5 | 26.1 | 20.8 | 2.1 | 2.0 | 1.9 | 18.8 | 15.5 | 12.9 |
| VA Tech Wabag | VATW IN | NR | 18 | 303 | NR | - | 8.9 | 10.3 | 11.4 | 13.2 | 12.3 | 10.3 | 1.1 | 1.1 | 1.0 | 7.5 | 7.1 | 6.1 |

Note: pricing as on 19 September 2022; Source: Bloomberg Consensus numbers for Not Rated companies; Company, Elara Securities Estimate

**Exhibit 25: Peer financials**

| Company | Sales (INR mn) | | | EBITDA (INR mn) | | | Net income (INR mn) | | | EBITDA margin (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FY22 | FY23E | FY24E | FY22 | FY23E | FY24E | FY22 | FY23E | FY24E | FY22 | FY23E | FY24E |
| Praj Industries | 23,333 | 29,638 | 38,729 | 1,938 | 2,593 | 3,486 | 1,502 | 2,032 | 2,704 | 8.3 | 8.7 | 9.0 |
| Thermax | 60,704 | 79,468 | 93,278 | 4,085 | 6,034 | 8,203 | 3,123 | 4,346 | 5,918 | 6.7 | 7.6 | 8.8 |
| Triveni Engineering & Indus | 42,909 | 50,500 | 54,372 | 6,344 | 7,733 | 9,007 | 4,241 | 4,916 | 5,822 | 14.8 | 15.3 | 16.6 |
| ISGEC Heavy Engineering | 44,445 | 48,869 | 53,413 | 2,091 | 2,640 | 3,162 | 1,128 | 1,501 | 1,881 | 4.7 | 5.4 | 5.9 |
| VA Tech Wabag | 29,793 | 33,600 | 37,119 | 2,370 | 2,694 | 3,130 | 1,319 | 1,472 | 1,780 | 8.0 | 8.0 | 8.4 |

Note Pricing as on 19 September 2022; Source: Bloomberg Consensus numbers for Not Rated companies; Company, Elara Securities Estimate

**Exhibit 28: Difference from Consensus**

| (INR mn) | Consensus | | Elara | | Change (%) | |
|---|---|---|---|---|---|---|
| | FY23 | FY24 | FY23E | FY24E | FY23E | FY24E |
| Sales | 30,499 | 37,072 | 29,638 | 38,729 | (2.8) | 4.5 |
| EBITDA | 2,803 | 4,087 | 2,593 | 3,486 | (7.5) | (14.7) |
| Margin (%) | 9.2 | 11.0 | 8.7 | 9.0 | (50bp) | (200bp) |
| PAT | 2,195 | 3,041 | 2,704 | 3,378 | 23.2 | 11.1 |

Source: Bloomberg, Elara Securities Estimate

### Class apart

PRJ does not have direct comparable peers, either domestic or international. However, there are companies in specific segments, which partly compete with it: 1) in 1G bioenergy, Excel Engineering (Not Listed) and ISGEC Heavy Engineering provide EPC solutions, 2) in the CPES space, Thermax (TMX IN, **Reduce**, TP: INR 2,130, CMP: INR 2,557) is a competitor, but it more of a products company whereas PRJ is technology solutions provider, and 3) in the ZLD segment, TMX and VA Tech Wabag can be considered as competitors, but the services portfolio is different.

## Key risks to our call and other factors

- Delay in new project awarding: Currently, ethanol production plants and distilleries fall under the "red" category and need environmental clearances under the Air and Water Acts for new & expansion projects, which can lead to delays. The government has fast-tracked the process to a maximum 10 months from the date of application and approved single-window clearance
- Change in government policies toward ethanol or sugar and starchy feedstock: producers are faced with non-availability of feedstock on a sustainable basis, due to seasonality, natural calamity, different production capacity across states, transportation & logistical issues, and inadequate storage. Hence, the government has expanded the list of feedstocks allowed for production of ethanol
- Increase in cost of key raw material like steel: Stainless steel is a major raw material, and PRJ has had to bear the brunt of the rise in commodity prices. The ongoing War and the disruption in supply chain has dragged gross margin, which management has countered by maintaining higher inventory levels, timely completion of projects, fixed price contracts etc
- Challenges in global economics could lead in delay in implementation of policies related to bioenergy: Bulk of PRJ's market share and revenue comes from the bioenergy segment. Any delay in EBP or slowdown in offtake of ethanol from OMC can lead to a production decline in ethanol
- Succession planning post Founder Dr Pramod Chaudhari is yet to be implemented: Dr Chaudhari is as a first-generation techno-entrepreneur, who had the foresight of seeing the potential of a thriving bioeconomy, which could benefit India and the World to offset the ill-effects of climate change decades ago. Under his scientific and professional guidance, PRJ has become the flagbearer, both domestically and internationally, in the industrial biotech sphere. We are of the view the Board will seek a worthy successor of his ilk to ensure the company continues on this sustainable and environmentally friendly growth track

## Company Description

Incorporated in 1982, Praj Industries (PRJ IN) is an industrial biotech company known for its technology, engineering, manufacturing, project management and operations (TEMPO) with nearly 3 decades of experience. While it began its journey as a supplier of ethanol plants, after 3 decades, it has transformed into a global company with a presence across 100+ countries with focus on future-ready technology and services.

## Board of Directors & Management

**Dr Pramod Chaudhari, Founder**

Dr Pramod Chaudhari founded the company in 1983, owing to his affinity for agriculture and exposure to research with a belief a thriving bioeconomy would benefit India and the World by being a significant contributor to offset the catastrophic effects of climate change. Dr Chaudhari is as a first-generation, techno-entrepreneur, an alumnus of IIT Bombay (1971) and Harvard Business School (1995). He is the first from India to receive the globally coveted *George Washington Carver Award 2020*

**Shishir Joshipura, CEO and MD**

Mr Shishir Joshipura is CEO and MD. He has 35 years of experience in engineering. Before joining PRJ, he served as Managing Director of SKF India during CY09-18. He began his career with Thermax and has held several key positions to rise through the ranks to become Executive Vice President and Global Head of Cooling & Heating business. Mr Joshipura is a mechanical engineer from the Birla Institute of Technology & Science (BITS), Pilani, and an advanced management graduate from the Harvard Business School.

**Sachin Raole, CFO & Director of Resources**

Mr Sachin Raole is CFO and Director of Resources. He has 27 years of experience in finance & accounts, he is a Cost Accountant and Chartered Accountant. Mr Raole has worked in divestment, M&A, financial restructuring, treasury, accounts and taxation. He has rich experience in finance across industries, manufacturing, projects, financial services and pharmaceuticals. Additionally, Mr Raole has experience in heading the Human Resources department, materials, IT, legal & secretarial.

## Business offerings

**Bioenergy (75% of orderbook and 71% of revenue)**

- The company began its foray in bioenergy in the early 1980s. Around 80% of ethanol produced globally is used in vehicular fuel. More than 60 countries in the world are at different stages of ethanol-blending mandate, with increasing demand for cleaner fuels and an attempt to reduce dependence on crude oil
- **First-generation ethanol**: Sugar-based feedstock, such as sugarcane juice & molasses, beet, grains, such as corn, rice & wheat, tubers, such as cassava (tapioca) are the conventional feedstock used in different parts of the world and collectively termed as first-generation (1G) feedstock. Ethanol derived from these sources is termed as first-generation ethanol. A Greenfield 1G plant requires 9-15 months for execution with an average cost of INR 10mn per kilo liters per day (klpd) while a Brownfield plant takes 9-12 months of execution timeline with an overall cost of INR 200-300mn. <u>1G can reduce GHG emissions of 30-40%</u>
- **Advance biofuels – second-generation ethanol:** Second-generation (2G) feed stocks include agri residues, such as rice & wheat straw, cane trash, corn cobs & stover, cotton stalk, bagasse, empty fruit bunches (EFB) and forest residues. This technology is more sustainable, utilizes less water and has higher yield. This also will help reduce stubble burning across States in India. <u>The company has developed 2G-cellulosic ethanol technology, *Enfinity*, with a capacity of 1.0mn liters pa. 2G can reduce greenhouse gas emissions (GHG) emissions of up to 80-90%</u>
- **Compressed biogas:** In the compressed biogas (CBG) space, PRJ has a strong track record in renewable gas plants with 40 industrial installations with capacity of up to 1,500 M3/hr. It has developed a technology called RENGAS, which produces cost-effective compressed biogas for automotive applications from various feedstock
- **Future fuels:** Sustainable aviation fuel ([SAF] collaborated with US-based Gevo) & biomarine fuel, biomethanol and biohydrogen

### Engineering (20% of orderbook and 20% of revenue)

#### Critical process equipment & skids

- The company forayed into critical process equipment & skids space in CY08. It offers engineering & manufacturing solutions in clean & green tech, industrial gases, and specialty chemicals. Specialized services in conceptualizing, engineering and manufacturing of modular process packages along with critical equipment, such as reactors, high pressure vessels, heat exchangers, columns and customer-specific proprietary equipment
- This vertical serves a wider sector-wise requirement for high-end equipment & systems finding applications in the oil & gas, petrochemical, fertilizer and chemical industries
- The division has a dedicated state-of-art manufacturing unit with ~25,000 tonne pa capacity. Given strong customer focus and delivery capabilities, the business is poised for healthy growth

### Brewery & beverages (70% market share in India)

- The brewery & beverages foray began in the early 1990s. This synergistic business provides from conceptualization, technology, design, plant engineering up to project installation and commissioning. PRJ offers complete solutions backed by expertise and experience

### Industrial effluent treatment, recycling & ZLD systems

- The industrial effluent treatment, recycling and ZLD systems vertical was established in CY10. It addresses industrial applications for high quality water
- The vertical caters to customers across several water-intensive sectors, namely metals, power, fertilizers, refinery & petrochemicals, and F&B
- The company does not engage in treatment of municipal waste or sewage treatment plants

### Praj Hi-Purity Systems (5% of orderbook; 9% of sales)

- Praj Hi-Purity Systems is a wholly owned subsidiary with a market share of 35-40%. It caters to the pharmaceuticals, biotech, cosmetics and the wellness sectors. The subsidiary is engaged in providing high purity water and hygienic systems to the pharma industry

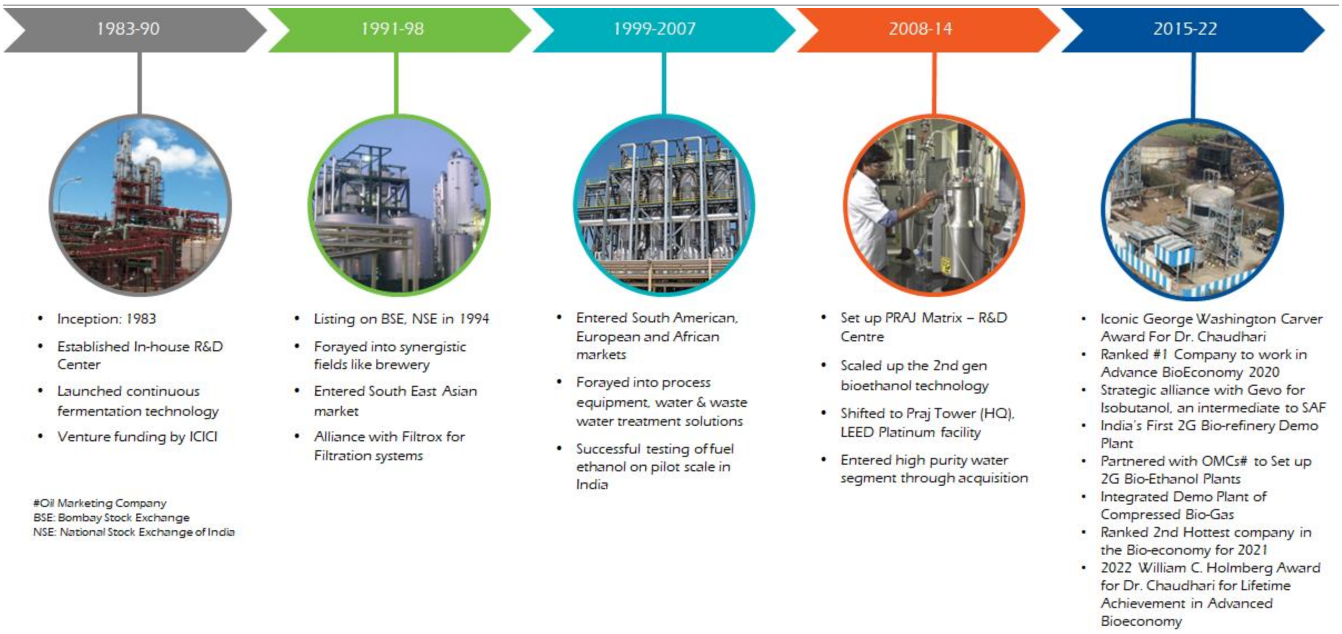
**Exhibit 29: Shareholding structure as on 30 June 2022**

| | Stake (%) |
|---|---|
| Promoters | 32.8 |
| DII | 10.1 |
| FII | 15.9 |
| Others | 41.2 |

Source: BSE, Elara Securities Research

Industrials

### Exhibit 30: Key business milestones




Source: Company, Elara Securities Research

### Exhibit 31: State-of-the-art manufacturing facilities

**Pune Unit**
- Infrastructure for SS, Copper and LAS (Low Alloy Steel)
- Area: 28,800 sqm for fabrication unit

**Mumbai Unit**
- Exclusively for HiPurity Systems
- Systems /equipment comply with WHO / US FDA / UK MHRA
- Area : 70,000 sqm

**Kandla SEZ**
- Stainless steel, Alloy & carbon steel products and Modular skids
- Area: 30,700 sqm (Unit 1); 20,200 sqm (Unit 2)

Source: Company, Elara Securities Research

### Exhibit 32: Subsidiaries and key financials

| Company | Stake (%) | Turnover (INR mn) | | | | PAT (INR mn) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | FY19 | FY20 | FY21 | FY22 | FY19 | FY20 | FY21 | FY22 |
| Praj Far East Philippines | 100.00 | 195 | 32 | 38 | 40 | 11 | 3 | 15 | (3) |
| Praj America | 100.00 | 37 | 63 | 49 | 58 | 5 | 4 | (4) | 8 |
| Praj Far East. Thailand | 100.00 | 179 | 151 | 80 | 78 | 13 | 3 | 9 | 3 |
| Praj Hi-Purity Systems, India | 100.00 | 1,555 | 1,189 | 1,642 | 2,055 | 4 | (28) | 83 | 142 |
| Praj Engineering & Infra, India | 99.65 | 289 | 247 | 464 | 740 | 12 | 15 | 34 | 7 |
| **Total** | | **2,254** | **1,683** | **2,274** | **2,971** | **45** | **(2)** | **136** | **157** |

Source: Company, Elara Securities Research

**Extensive international presence**

- Southeast Asia: It started servicing Southeast Asia in 1992 and the first plant of 120,000 klpd was commissioned in 1994 in Indonesia. PRJ supplied plants in Thailand, the Philippines, Australia, Cambodia, and Vietnam. The predominant feedstock for bioethanol in this region are cassava, sugarcane molasses and juice. Thailand implemented the biofuels program successfully and phased out premium gasoline with gasohol. The Philippines has mandated 10% ethanol blending while Australia has a 2% mandate for blending. Japan imports ethanol for production of ethyl tertiary butyl ether (ETBE - an oxygenate). Vietnam also has installed facilities for blending
- The African Continent: PRJ has been partnering with companies from the African Continent in the sugar & ethanol sector with technology, engineering and turnkey solutions for the past two decades. With significant work in Algeria, Burkina Faso, Egypt, Ethiopia, Kenya, Malawi, Mauritius, Mozambique, Nigeria, Sierra Leone, South Africa, Swaziland, Tanzania, Turkey and Zimbabwe over the past 20 years, the company is committed to developing on the African Continent by focusing on process solutions for agriculture, energy and environment
- The Americas: South America is a region of abundant natural resources, which includes fertile soil, water and minerals. The agrarian continent has soil-climate conditions suitable for sugarcane cultivation. This has led to the development of the downstream industry of ethanol and other bioenergy & chemicals. One of the most efficient sugar producers of the world, Colombia also is an exemplar in successful implementation of the ethanol blending program in the world. Colombia's fuel ethanol program was launched in CY02 when the government passed a law mandating the use of fuel ethanol in gasoline. PRJ is proud to fulfil 100% of Colombia's fuel ethanol program by installing production plants. These plants serve as a benchmark in the entire South American region. Production of the first fuel ethanol plant began in October 2005 with an output of 300,000 liters per day in the Cauca Region. By March 2006, four more plants in the Cauca Valley became operational with a combined capacity of 1.05mn liters per day or 357mn liters per year. Besides Colombia, PRJ has references in Argentina, Peru, Guatemala, Mexico and other South Central American countries. PRJ serves clients in South as well as North America from its offices at Houston, Texas
- Europe: With more than two decades, PRJ has carved a space in Europe. UK's largest fuel ethanol plant for Vivergo Fuels, with a production capacity of 1.2mn liters per day deploys the company's technology. Recently, PRJ also commissioned a Vodka-grade beverage alcohol plant in Poland with energy savings *Ecosmart* technology. The company works with marquee customers within Europe and has references in the UK, Poland, Belgium, Hungary, Germany and Bulgaria

**Brazil's experience in the ethanol journey**

Biofuels have been a part of Brazil's National Energy policies for nearly half a century. Biofuel production on a significant scale started in 1975 as a response to the first oil shock (at that time imported 70% of its petroleum consumption). Current regulation for ethanol blending in petrol stands at 27%. Brazil has the world's largest transport matrix decarbonization program, *RenovaBio,* in force since CY19, and it is expected to increase ethanol supply by 45% until CY30. A Brazilian company *Raizen* is supplying 2G ethanol to F1 team (10% blending) and *Embraer* is developing ethanol blending for sustainable aviation fuel (SAF). The ethanol economy got a renewed push post CY03 with flex engines, which allow 100% blending with petrol

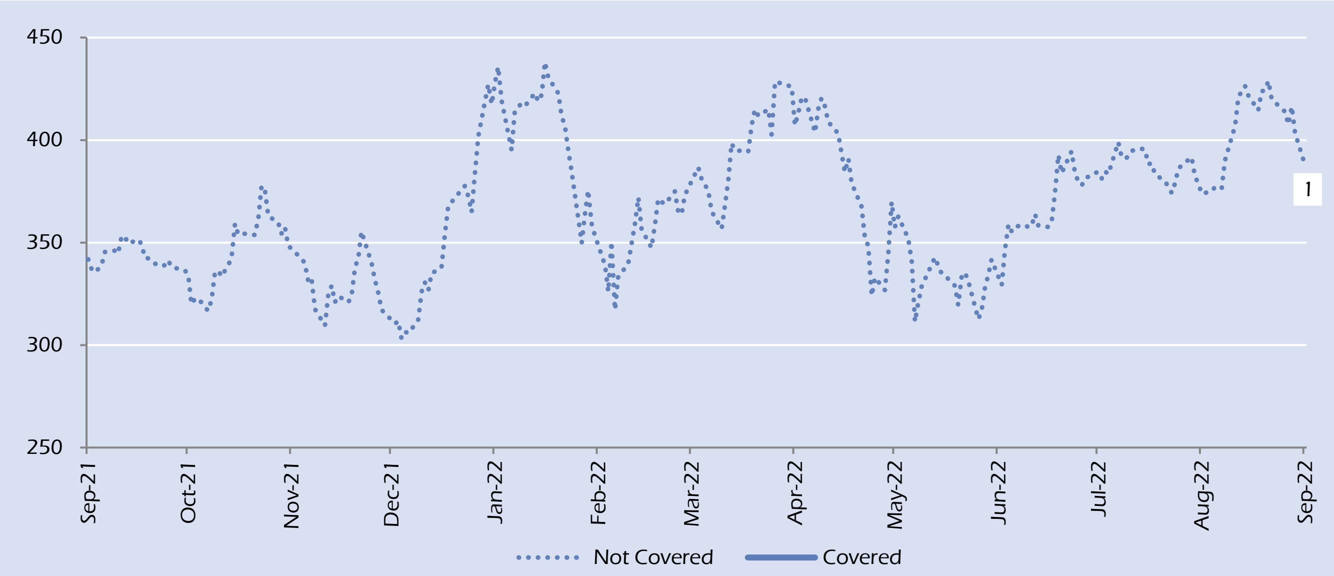
**Benefits:** Along with forex savings of USD 261bn, Brazil has avoided more than 1.34bn tonne of CO2 emissions, leading to a 50% reduction in air pollution and improved public health

**Electric vehicles:** Ethanol is a meaningful solution for electric vehicles. The solid oxide fuel cell technology, which converts ethanol into electricity for power vehicles, has proven to be far more energy-efficient and environment-friendly than battery-operated electric vehicles. Sugarcane ethanol has higher energy density than batteries and greenhouse gas emissions are significantly less considering the whole energy cycle

**Readthrough for India:** Brazil and India are two major developing economies where agriculture forms the backbone of their economies. As tropical countries, the two are the largest producers of sugarcane in the world. Hence, they are poised to spearhead ethanol as a global commodity. India has already advanced its 20% blending of ethanol in petrol (E20) by five years to CY25 and adoption of flex fuel engines will be a game-changer. Brazil and Inda recently signed three MOU in bioenergy cooperation in CY20

Industrials

## Coverage History




| | Date | Rating | Target Price | Closing Price |
|---|---|---|---|---|
| 1 | 19-Sept-2022 | Buy | INR 515 | INR 388 |

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| | |
|---|---|
| BUY | Absolute Return >+20% |
| ACCUMULATE | Absolute Return +5% to +20% |
| REDUCE | Absolute Return -5% to +5% |
| SELL | Absolute Return < -5% |

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