



BAJAJ HIDUSTHAN SUGAR LTD. Stock Price Prediction & Analysis

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PROJECT OUTLINE –

- ❑ ABOUT THE COMPANY**

- ❑ TOOLS USED**

- ❑ FINANCIAL ANALYSIS REPORTS**

- ❑ PREDICTIVE ANALYSIS**

BAJAJ HINDUSTHAN SUGAR LTD.



BHSL is India's number one sugar and ethanol manufacturing company and is ranked as Asia's number one and the world's fourth largest integrated sugar company.

1st in Asia
4th in World

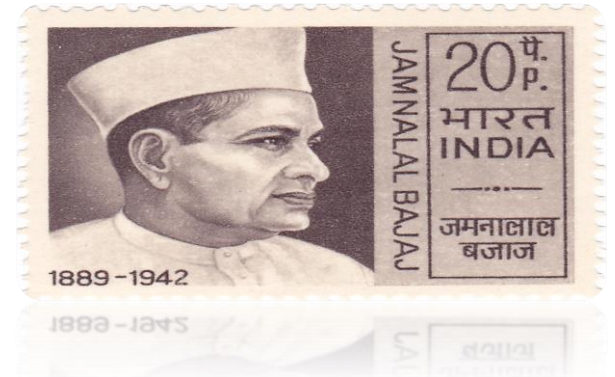


Mr. Kushagra Nayan Bajaj is the Promoter and Non-Executive Chairman of the Bajaj Group

bajaj SUGAR



The site is Located at Gola Gokaran Nath, in Lakhimpur Kheri , UTTAR PRADESH.



- Bajaj Hindusthan Sugar Limited (BHSL) was incorporated on November 23, 1931 as 'Hindusthan Sugar Mills Limited'. Set up by late Shri Jamnalal Bajaj.

TOOLS USED



FINANCIAL TERMINOLOGIES



PYTHON



PREDICTIVE MODELING



EXCEL

Financial Analysis Reports

INCOME STATEMENT (2016-2024)

Financial Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Revenue	4,780.46	4,495.70	5,947.70	6,902.28	6,681.32	6,688.56	5,607.56	6,360.34	6,146.33
Raw Materials	3,127.29	4,037.88	4,900.53	5,658.63	5,363.34	5,297.32	4,609.93	5,074.48	4,954.61
Power & Fuel Cost	12.76	17.4	14.72	16.87	28.6	25.95	21.74	24.45	19.42
Employee Cost	199.08	233.71	249.64	275.29	299.78	328.68	342.93	379.46	406.26
Selling & Administrative Expenses	58.24	71.38	93.09	90.74	69.41	71.55	80.21	72.88	74.73
Operating & Other expenses	508.69	-812.21	316.63	468.68	455.27	779.54	355.62	523.91	402.07
EBITDA	874.4	947.54	373.09	392.07	464.92	185.52	197.13	285.16	289.24
Depreciation/Amortization	241.71	243.18	197.45	204.23	216.41	215.71	214.66	213.2	222.47
PBIT	632.69	704.36	175.64	187.84	248.51	-30.19	-17.53	71.96	66.77
Interest & Other Items	848.39	802.08	680.17	321.78	300.87	263.52	253.99	210.12	161.82
PBT	-215.7	-97.72	-504.53	-133.94	-52.36	-293.71	-271.52	-138.16	-95.05
Taxes & Other Items	-3.6	-5.74	-4.89	2.62	-2.37	-2.89	-3.98	-3.43	-8.64
Net Income	-212.1	-91.98	-499.64	-136.56	-49.99	-290.82	-267.54	-134.73	-86.41
EPS	-2.24	-0.84	-4.54	-1.24	-0.45	-2.64	-2.25	-1.05	-0.68
EBIT	632.69	704.36	175.64	187.84	248.51	-30.19	-17.53	71.96	66.77

- Fluctuating Revenue and Costs:
- Volatile EBITDA and Net Income:
- Inconsistent Profitability Indicators:
- Challenges in Sustaining Positive Margins:

**FINANCIAL
INSTABILITY**



Financial Analysis Reports

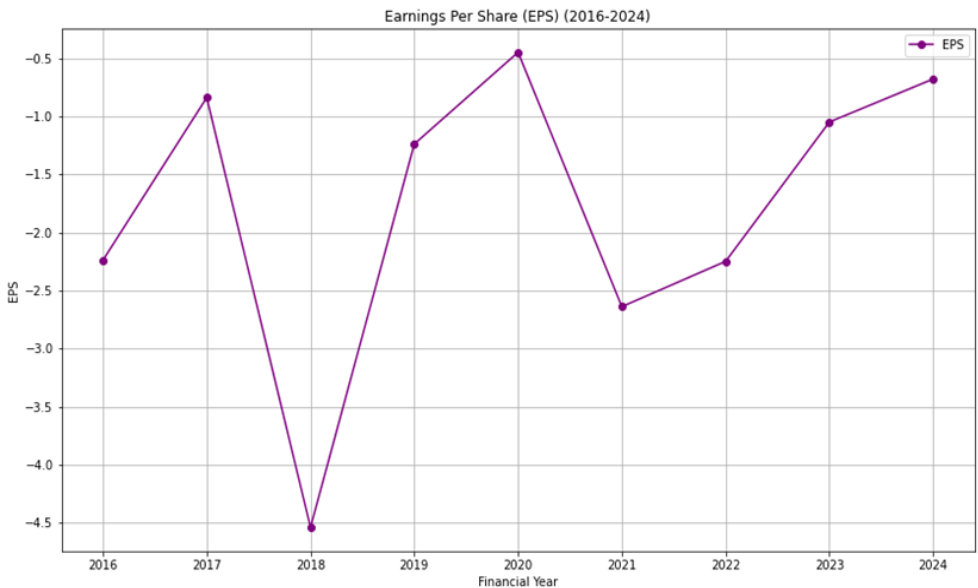
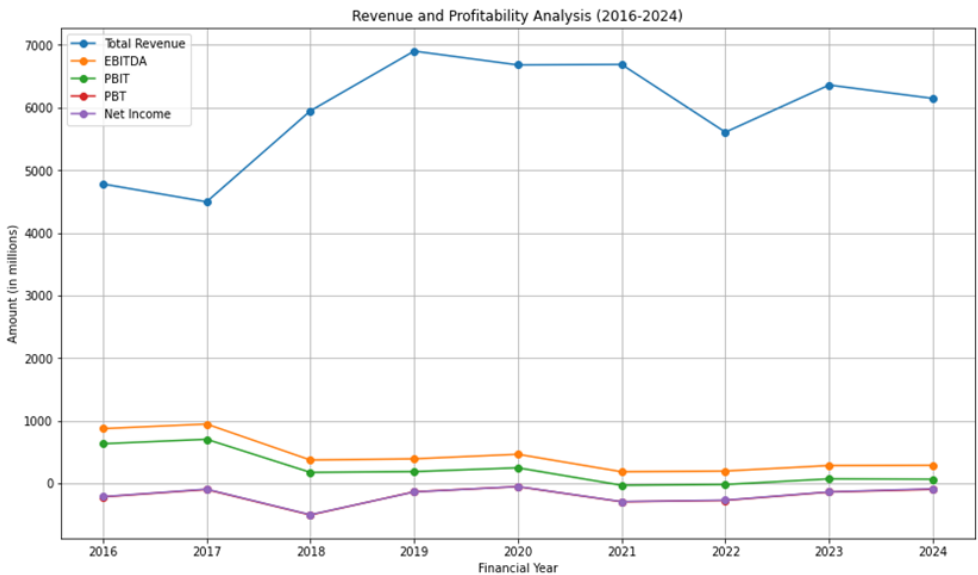
Financial Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gross Profit	1,640.41	440.42	1,032.45	1,226.78	1,289.38	1,365.29	975.89	1,261.41	1,172.30
Gross Profit Margin	34.31	9.80	17.36	17.77	19.30	20.41	17.40	19.83	19.07
Operating Profit	874.40	947.54	373.09	392.07	464.92	185.52	197.13	285.16	289.24
Operating Profit /EBITDA Margin	18.29	21.08	6.27	5.68	6.96	2.77	3.52	4.48	4.71
PBIT Margin	13.23	15.67	2.95	2.72	3.72	-0.45	-0.31	1.13	1.09
Net Income Margin	-4.44	-2.05	-8.40	-1.98	-0.75	-4.35	-4.77	-2.12	-1.41

High raw material costs have been a significant burden, contributing to negative profitability.

The company's EBITDA and PBIT margins have shown a declining trend, with significant volatility and negative margins in recent years.

EPS has remained negative, suggesting continued losses for shareholders.

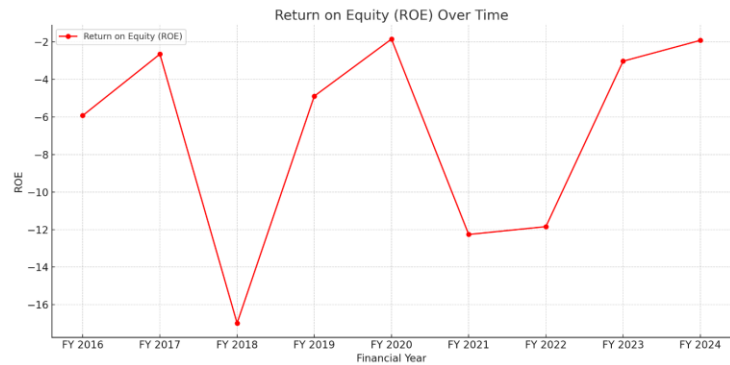
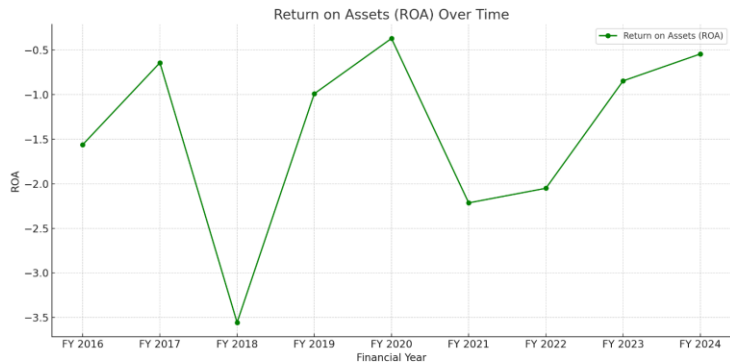
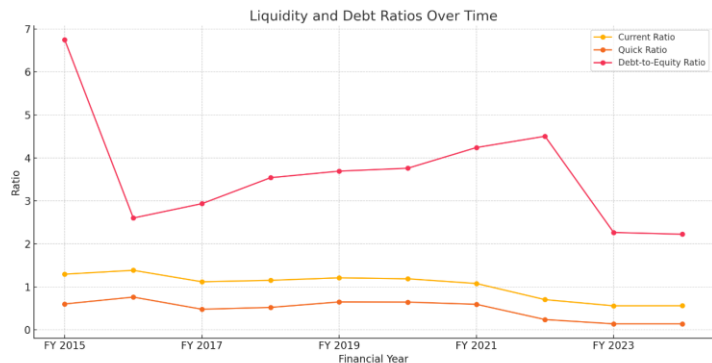
The data suggests the need for strategic cost management and revenue growth initiatives to improve financial health and profitability.



Financial Analysis Reports

BALANCE SHEET (2016-2024)

Financial Year	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Cash and Short Term Investments	89.36	397.32	352.12	330.49	1,104.35	1,151.93	1,111.03	52.01	23.4	52.21
Total Receivables	163.34	286.8	150.05	169.33	196.63	168.96	213.14	214.3	140.85	155.91
Total Inventory	2,179.29	1,924.12	3,009.52	2,847.88	2,764.98	2,711.39	2,541.34	2,745.56	2,612.72	2,720.54
Other Current Assets	1,641.95	1,669.16	1,757.12	1,857.99	1,897.67	1,905.09	1,798.67	1,154.12	705.49	692.39
Current Assets	4,073.94	4,277.40	5,268.81	5,205.69	5,963.63	5,937.37	5,664.18	4,165.99	3,482.46	3,621.05
Loans & Advances	—	—	—	—	—	—	—	—	—	—
Net Property/Plant/Equipment	4,916.68	7,974.12	7,781.81	7,618.45	7,423.18	7,246.87	7,028.70	6,813.28	7,805.60	7,589.74
Goodwill & Intangibles	45.7	28.52	0	0	0	0	0	0	0	0
Long Term Investments	2,450.93	1,035.15	1,010.96	958.58	153.93	99.34	47.9	1,918.47	4,479.97	4,595.88
Deferred Tax Assets (Net)	4.02	—	—	—	—	—	—	—	—	—
Other Assets	315.19	272.32	275.29	266.66	265.53	264.78	394.98	152	171.31	99.44
Non Current Assets	7,732.52	9,310.11	9,068.06	8,843.69	7,842.64	7,610.99	7,471.58	8,883.75	12,456.88	12,285.06
Total Assets	11,806.46	13,587.51	14,336.87	14,049.38	13,806.27	13,548.36	13,135.76	13,049.74	15,939.34	15,906.11
Accounts Payable	2,791.71	2,196.64	2,786.99	3,374.70	4,165.70	4,444.46	4,461.72	4,094.73	4,556.30	3,629.61
Total Deposits	—	—	—	—	—	—	—	—	—	—
Other Current Liabilities	354.71	892	1,925.79	1,144.47	761.13	554.68	791.3	1,832.47	1,673.60	2,830.51
Current Liabilities	3,146.42	3,088.64	4,712.78	4,519.17	4,926.83	4,999.14	5,253.02	5,927.20	6,229.90	6,460.12
Total Long Term Debt	7,111.34	6,219.80	5,459.79	5,892.42	5,382.09	5,139.53	4,807.16	4,246.28	3,840.28	3,541.12
Deferred Tax Liabilities (Net)	—	661.42	649.03	637.64	629.46	610.07	590.94	505.63	1,303.46	1,288.50
Other Liabilities	28.31	39.2	49.71	58.19	75.5	102.52	112.42	111.54	120	119.09
Non Current Liabilities	7,139.65	6,920.42	6,158.53	6,588.25	6,087.05	5,852.12	5,510.52	4,863.45	5,263.74	4,948.71
Total Liabilities	10,286.07	10,009.06	10,871.31	11,107.42	11,013.88	10,851.26	10,763.54	10,790.65	11,493.64	11,408.83
Common Stock	81.02	108.39	110.07	110.07	110.07	110.07	110.07	124.45	135.35	136.54
Additional Paid-in Capital	4,213.60	4,150.57	4,185.31	4,185.31	4,185.31	4,185.31	4,185.31	4,361.90	4,361.90	4,361.90
Reserves & Surplus	-2,774.23	-680.51	-965.6	-1,499.95	-1,649.52	-1,744.80	-2,069.68	-2,311.22	-152.97	-111.22
Minority Interest	0	0	0	-0.01	-0.01	-0.02	-0.02	-0.02	10.4	10.05
Other Equity	0	0	135.78	146.54	146.54	146.54	146.54	83.98	91.02	100.01
Total Equity	1,520.39	3,578.45	3,465.56	2,941.96	2,792.39	2,697.10	2,372.22	2,259.09	4,445.70	4,497.28
Total Liabilities & Shareholder's Equity	11,806.46	13,587.51	14,336.87	14,049.38	13,806.27	13,548.36	13,135.76	13,049.74	15,939.34	15,906.11
Total Common Shares Outstanding	81.02	108.39	110.07	110.07	110.07	110.07	110.07	127.74	127.74	127.74



Ratio Analysis

Liquidity Ratios										
Financial Year	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Current Ratio	1.29	1.38	1.12	1.15	1.21	1.19	1.08	0.70	0.56	0.56
Quick Ratio	0.60	0.76	0.48	0.52	0.65	0.65	0.59	0.24	0.14	0.14
Cash Ratio	0.03	0.13	0.07	0.07	0.22	0.23	0.21	0.009	0.004	0.008
Operating Cash Flow Ratio	-0.12	0.12	0.15	0.21	0.23	0.18	0.06	0.10	0.13	0.10

Leverage Ratios										
Financial Year	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Debt-to-Equity Ratio	6.75	2.60	2.94	3.54	3.69	3.76	4.24	4.50	2.27	2.22
Debt Ratio	0.87	0.69	0.71	0.74	0.75	0.75	0.77	0.78	0.63	0.63
Long term Debt-to-Equity Ratio	4.68	1.74	1.58	2.00	1.93	1.91	2.03	1.88	0.86	0.79
Equity Multiplier	7.77	3.80	4.14	4.78	4.94	5.02	5.54	5.78	3.59	3.54

Profitability Ratios									
Financial Year	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Net Profit Margin	-4.44	-2.05	-8.40	-1.98	-0.75	-4.35	-4.77	-2.12	-1.41
Return on Assets (ROA):	-1.56	-0.64	-3.56	-0.99	-0.37	-2.21	-2.05	-0.85	-0.54
Return on Equity (ROE):	-5.93	-2.65	-16.98	-4.89	-1.85	-12.26	-11.84	-3.03	-1.92

Coverage Ratios									
Financial Year	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Interest Coverage Ratio	0.75	0.88	0.26	0.58	0.83	-0.11	-0.07	0.34	0.41
Fixed Charge Coverage Ratio	1.75	1.88	1.26	1.58	1.83	0.89	0.93	1.34	1.41
Times Interest Earned Ratio	0.75	0.88	0.26	0.58	0.83	-0.11	-0.07	0.34	0.41
Cash Coverage Ratio	0.45	0.87	1.40	3.47	3.03	1.26	2.44	3.77	3.98

Declining Liquidity: The significant drop in current and quick ratios from FY 2021 onwards suggests growing liquidity concerns.

Cash Flow Stability: Despite the drop in other ratios, the operating cash flow ratio indicates some stability in cash flow generation.

Financial Health: The overall trend points to increasing challenges in meeting short-term liabilities, emphasizing the need for improved cash management strategies.

Decreasing Leverage: Significant reductions in the debt-to-equity and long-term debt-to-equity ratios from FY 2022 onwards indicate efforts to reduce reliance on debt financing.

Equity Financing: Consider increasing equity financing to further reduce leverage and improve the company's balance sheet.

Consistent Losses: All profitability ratios remained negative throughout the period, highlighting continuous financial struggles and inefficiencies in operations.

Efficiency Concerns: The negative ROA and ROE ratios indicate inefficiencies in asset utilization and challenges in delivering value to shareholders.

Company should focus on cost management as well as operational efficiency

Challenges: Both the interest coverage and (TIE ratio) were below 1 for most years, indicating difficulties in covering interest expenses with earnings.

Though the company could cover fixed charges despite variations in earnings

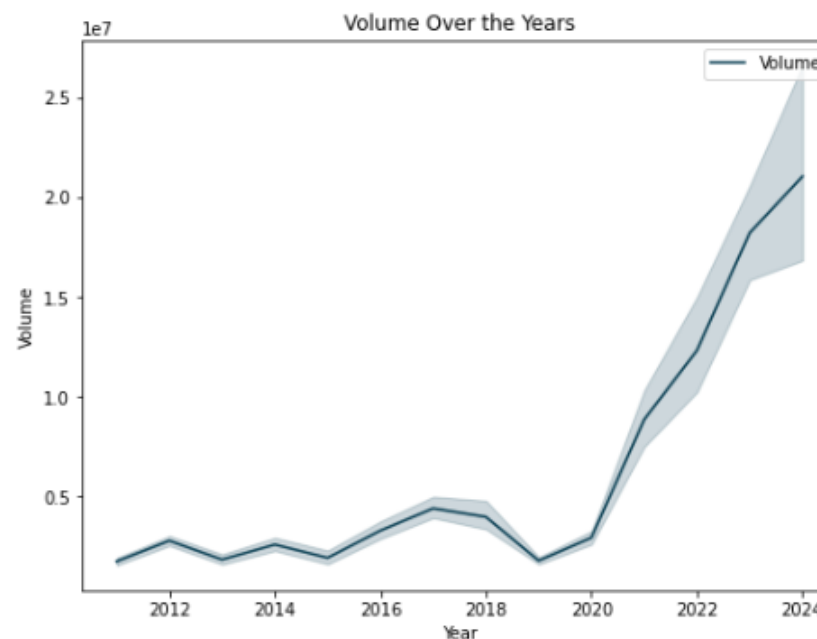
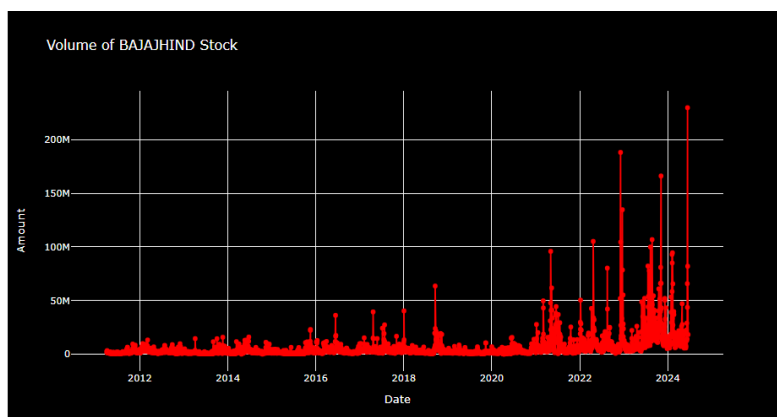
Recommendations: Focus on strategies to boost EBIT , Optimizing Fixed Costs , Evaluate options for restructuring debt

DATASET

	Date	Open	High	Low	Close	Adj Close	Volume
0	2011-04-01	50.797646	64.478806	50.797646	64.140999	63.143974	2369614.0
1	2011-04-04	64.605484	65.956711	63.845421	65.365547	64.349487	1296595.0
2	2011-04-05	66.083389	70.094841	65.534454	69.841484	68.755852	3313373.0
3	2011-04-06	70.263741	70.263741	68.068001	68.912514	67.841316	1852371.0
4	2011-04-07	68.405807	72.079453	67.983551	70.770454	69.670380	2254154.0
...
3255	2024-06-11	33.500000	36.689999	32.849998	36.270000	36.270000	65742192.0
3256	2024-06-12	36.700001	37.310001	35.830002	36.459999	36.459999	43560590.0
3257	2024-06-13	37.049999	42.990002	37.049999	41.730000	41.730000	229723759.0
3258	2024-06-14	42.049999	43.500000	41.060001	41.590000	41.590000	81926632.0
3259	2024-06-18	41.950001	42.400002	39.599998	40.000000	40.000000	18209627.0

3260 rows × 7 columns

EDA

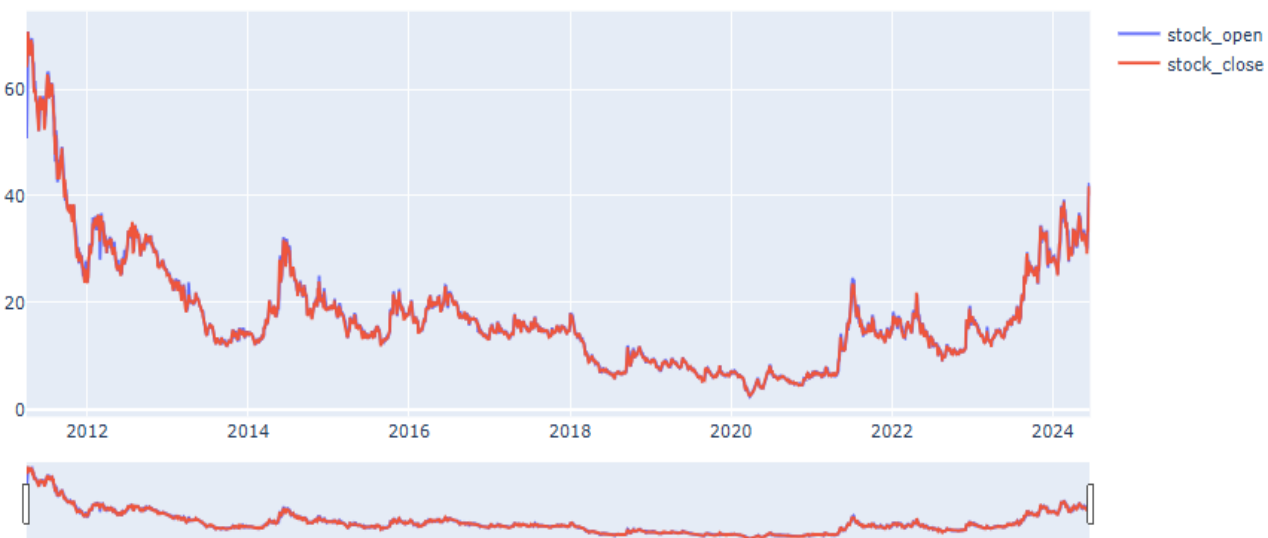


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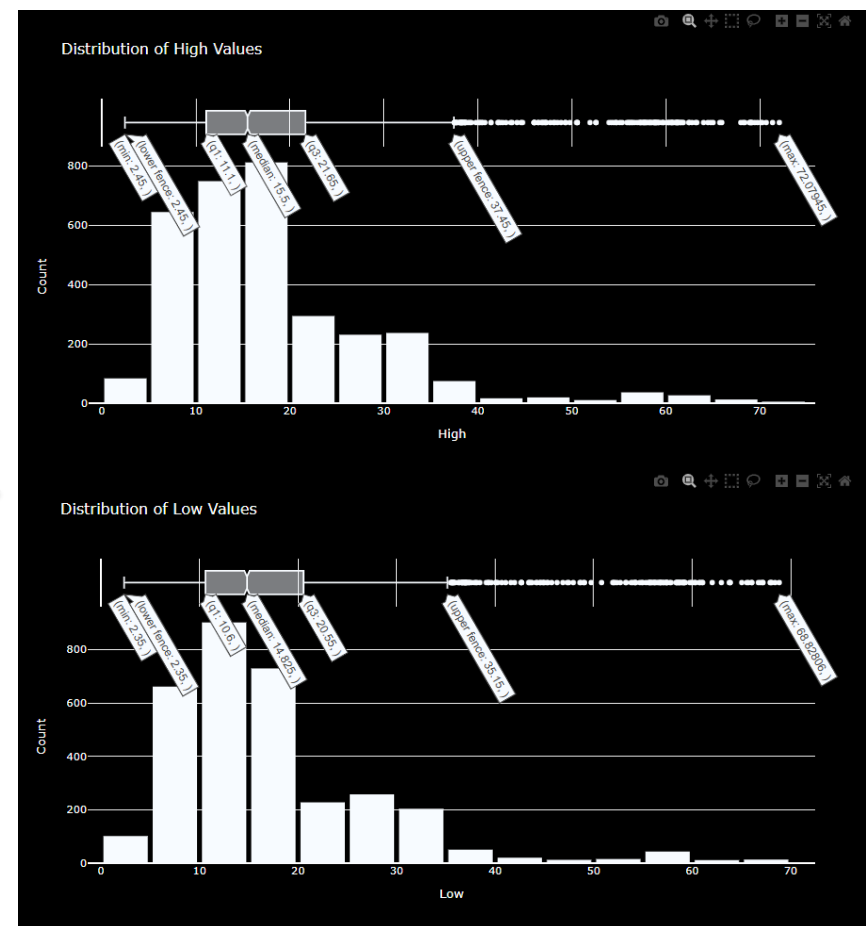
- The rise in the price of sugar , price have generally been trending upwards since 2020.
- Company had significantly reduced their outstanding debt from over Rs 4,771 crore to Rs 500 crore within a two-three year period

BAJAJHIND Stock Trend Chart (2011 – 2024)

bajajSUGAR



You will see that the difference between the open and high values on a average is very small. This signals stability on the stock market . Also the OHLC chart shows the same thing as did the line plot above, the differences between the high and low values are very small



KERAS MODEL (Sequential, Dense, LSTM)



Data Preparation

STEP 1

- Extracted 'Close' column.

STEP 2

- Scaled data using MinMaxScaler (0 to 1 range).

STEP 3

- Split data: 95% for training, 5% for testing.

MODEL Performance

RMSE - 1.2629572965134386

An RMSE of 1.3 means your model's predictions are, on average, ₹1.3 away from the actual price. This seems to be quite good depending on the volatility and acceptable error margin in stock price forecasting.

MODEL TRAINING

```
# Build the LSTM model
model = Sequential()
model.add(LSTM(128, return_sequences=True, input_shape= (x_train.shape[1], 1)))
model.add(LSTM(64, return_sequences=False))
model.add(Dense(25))
model.add(Dense(1))

# Compile the model
model.compile(optimizer='adam', loss='mean_squared_error')

# Train the model
model.fit(x_train, y_train, batch_size=1, epochs=2)

Epoch 1/2
3032/3032 [=====] - 40s 13ms/step - loss: 7.5896e-04
Epoch 2/2
3032/3032 [=====] - 38s 13ms/step - loss: 3.2958e-04
```

```
# Create the testing data set
# Create a new array containing scaled values from index 1543 to 2002
test_data = scaled_data[training_data_len - 60: , :]
# Create the data sets x_test and y_test
x_test = []
y_test = dataset[training_data_len:, :]
for i in range(60, len(test_data)):
    x_test.append(test_data[i-60:i, 0])

# Convert the data to a numpy array
x_test = np.array(x_test)

# Reshape the data
x_test = np.reshape(x_test, (x_test.shape[0], x_test.shape[1], 1))

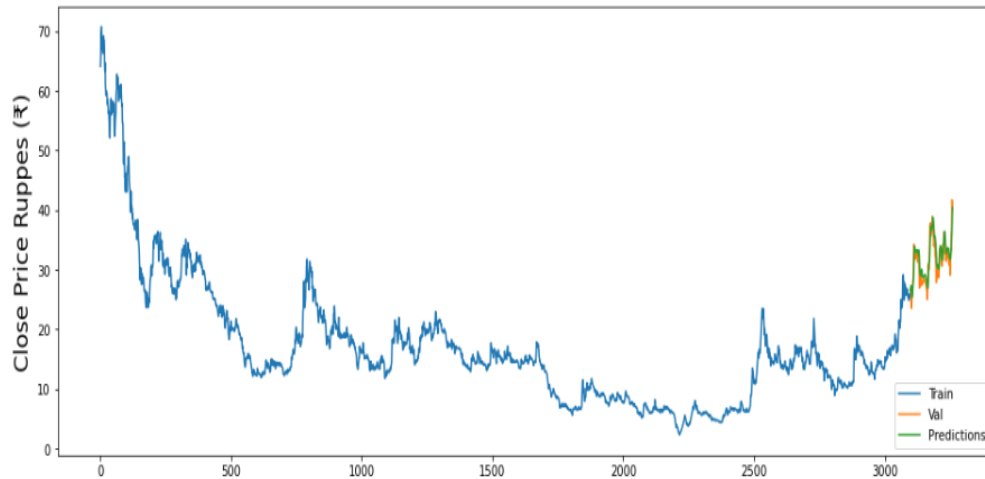
# Get the models predicted price values
predictions = model.predict(x_test)
predictions = scaler.inverse_transform(predictions)

# Get the root mean squared error (RMSE)
rmse = np.sqrt(np.mean(((predictions - y_test) ** 2)))
rmse

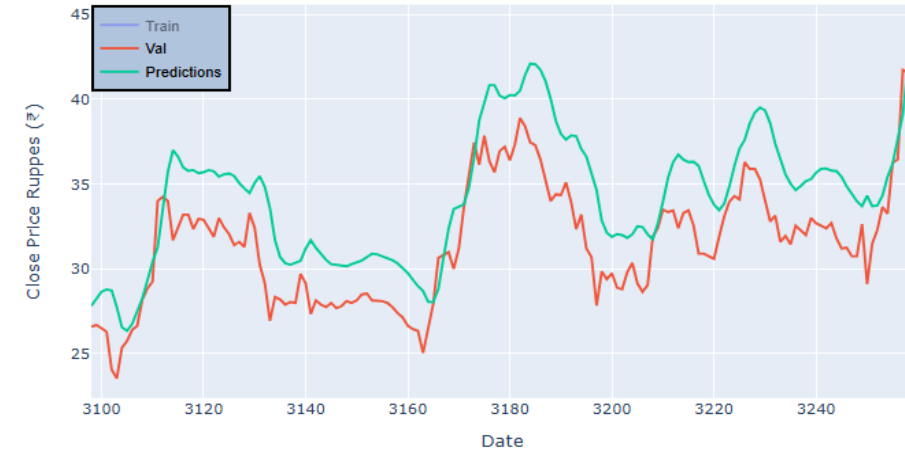
6/6 [=====] - 1s 12ms/step
1.2629572965134386
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RESULT OF KERAS MODEL

Prediction of Bajaj Hindusthan Stock price



Model



You can see, based on the predictions the stock prices of BHSL will rise. Based on the past values of the stocks, these predictions can be indeed counted as accurate. So, based on the past stock prices and trading volumes, and the predicted prices, we can infer that BHSL's stock are stable and have good ground for investing. They can probably bring profit to the investor and shareholder. So, the stocks are perfect for buying and investing.