



ICICI STOCK ANALYSIS REPORT

SUBMITTED BY:

TEAM 6

Abhishek Bhadarge

Anup Shelar

Chinmayee Patil

Snehal Nikam

Sahil Patel

1. Objective

The objective of this business analysis report is to provide insights into the stock performance of ICICI based on historical market data. This dataset contains financial data for ICICI Bank, capturing a range of stock market indicators. It can be used for analyzing trends, evaluating performance, or preparing predictive models. This report aims to:

- Evaluate Stock Trends
- Volume Analysis
- Key Performance Metrics
- Identify Business Opportunities
- Correlation Insights

2. Dataset Overview

- **Number of Rows:** 5,557
- **Number of Columns:** 7
- **Attributes (Columns):**
 1. **Price:** Indicates the market price of the stock.
 2. **Adj Close:** Adjusted closing price accounting for corporate actions and dividends.
 3. **Close:** Closing price of the stock for the trading day.
 4. **High:** The highest price reached during the trading day.
 5. **Low:** The lowest price reached during the trading day.
 6. **Open:** The opening price of the stock for the trading day.
 7. **Volume:** Total number of shares traded during the day.

3. Data Cleaning

To prepare the dataset for analysis, the following cleaning steps were performed:

1. Handling Missing Values:
 - Columns with missing values: Adj Close, Close, High, Low, Open, Volume.
2. Date Formatting:
 - Added a Date column with a proper datetime format to enable time-based analysis.
3. Removing Rows:
 - Removed rows with incomplete data after imputation, reducing the total row count from 5,557 to 5,554.

Data Cleaning Process:

After the data cleaning process, the dataset was refined to 5,554 rows and 11 columns. The updated attributes are as follows:

1. Date: Date of the record (stored as an object type for clarity).
2. Adj Close: Adjusted closing price of the stock.
3. Close: Closing price of the stock for the trading day.
4. High: The highest price reached during the trading day.
5. Low: The lowest price reached during the trading day.
6. Open: The opening price of the stock for the trading day.
7. Volume: Total number of shares traded during the day.
8. Prev Close: Closing price of the stock from the previous trading day.
9. Daily Return: Daily return percentage, calculated as the percentage change from the previous close to the current close.
10. SMA_50: 50-day Simple Moving Average, showing the average price over the past 50 days.
11. SMA_200: 200-day Simple Moving Average, showing the average price over the past 200 days.

4. Exploratory Data Analysis (EDA)

1. Summary Statistics

To understand the distribution of values and detect potential outliers or anomalies, basic statistics were calculated for key numerical columns: Open, High, Low, Close, Volume, and Daily Return. The statistics include:

- Mean: Average value.
- Standard Deviation: Measure of variation from the mean.
- Minimum (Min) and Maximum (Max): Smallest and largest values in the dataset.
- 25th, 50th (Median), and 75th Percentiles: Breakpoints dividing the data into four equal parts.

Below is an overview of the calculated statistics:

summary	Adj Close	Close	High	Low	Open	Volume	Prev Close	Daily return	SMA_50	SMA_200
count	5554	5554	5554	5554	5554	5554	5554	5554	5554	5554
mean	292.4489232985242	312.15711199135706	316.0974522866393	308.1571498019455	312.2551692473894	1.899857925333093E7	311.93590745408665	0.09953006841915746	306.66417897011155	290.9495714800145
stddev	290.82710333255415	289.20056681138425	291.5139319084312	286.7393341528185	289.08128020215275	1.8255774640870042E7	288.95001465940214	2.412898113221186	282.04281072948817	262.25531979643574
min	14.26	20.1	21.45	19.89	20.27	0	20.1	-19.86	23.82	24.9
max	1338.45	1338.45	1362.35	1316.9	1333.0	286857658	1338.45	23.04	1268.14	1162.18

2. Trend Analysis with Moving Averages

Rolling Averages Calculation

In stock market analysis, **Moving Averages** are crucial for smoothing out price fluctuations, helping to identify long-term trends. For this analysis, the **50-day (SMA_50)** and **200-day (SMA_200)** Simple Moving Averages were calculated to identify potential trends in the stock prices.

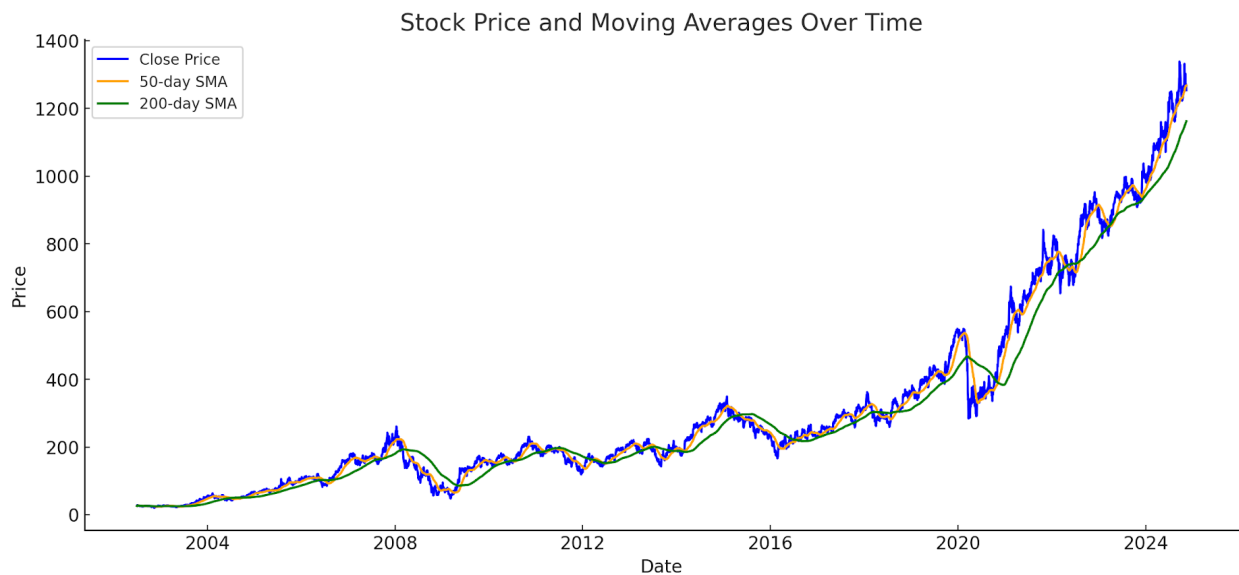


Interpretation:

- When the **50-day Moving Average (SMA_50)** crosses above the **200-day Moving Average (SMA_200)**, it signals an **uptrend**, suggesting that the stock price is likely to increase.
- Conversely, when the **SMA_50** crosses below the **SMA_200**, it indicates a **downtrend**, suggesting that the stock price may decline.

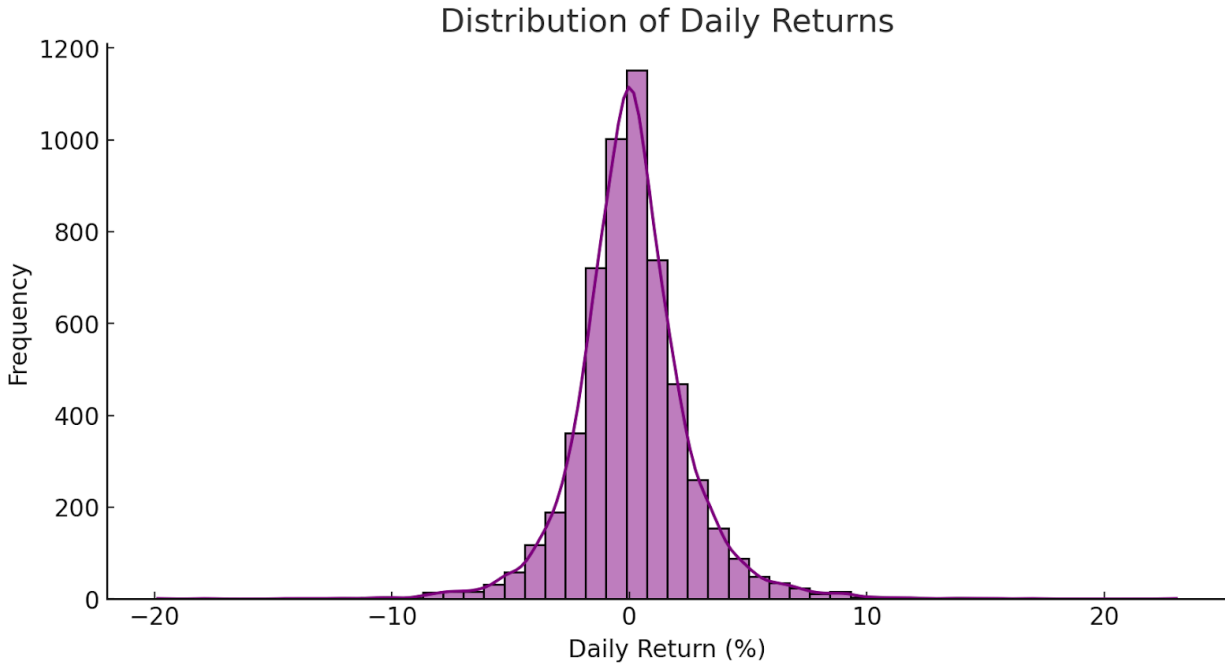
3. Stock Prices and Moving Averages

- The Close Price fluctuates significantly over the timeline, with long-term trends captured by the SMA_50 and SMA_200.
- The moving averages provide smoothed views of stock performance.



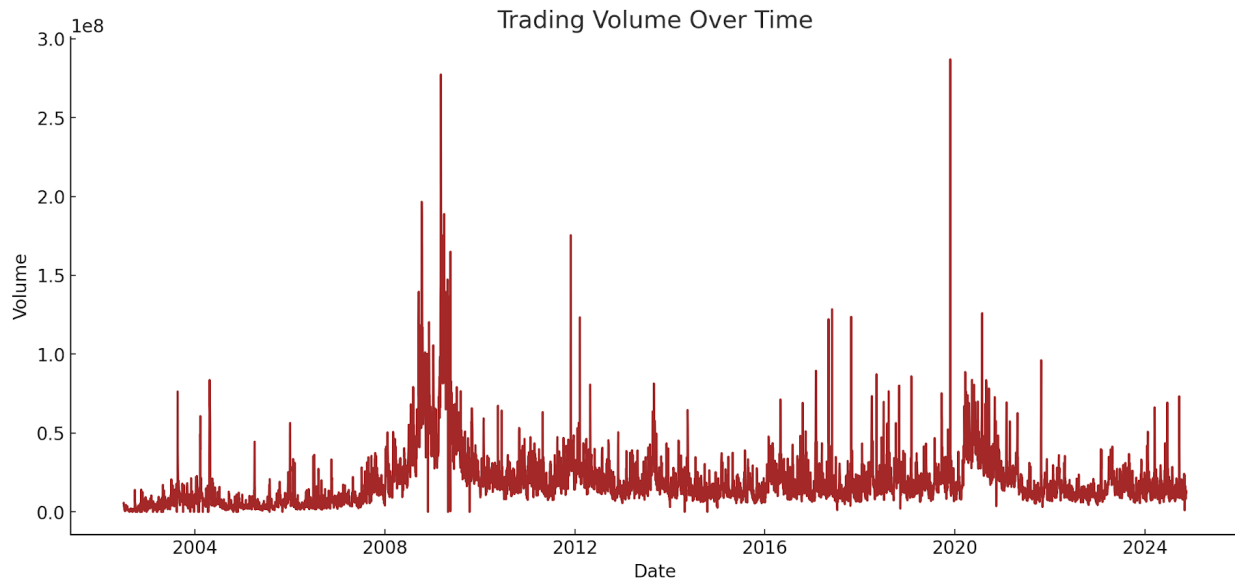
4. Distribution of Daily Returns

- Most daily returns are clustered near zero, indicating small day-to-day price changes.
- A few outliers suggest significant gains or losses on some days.

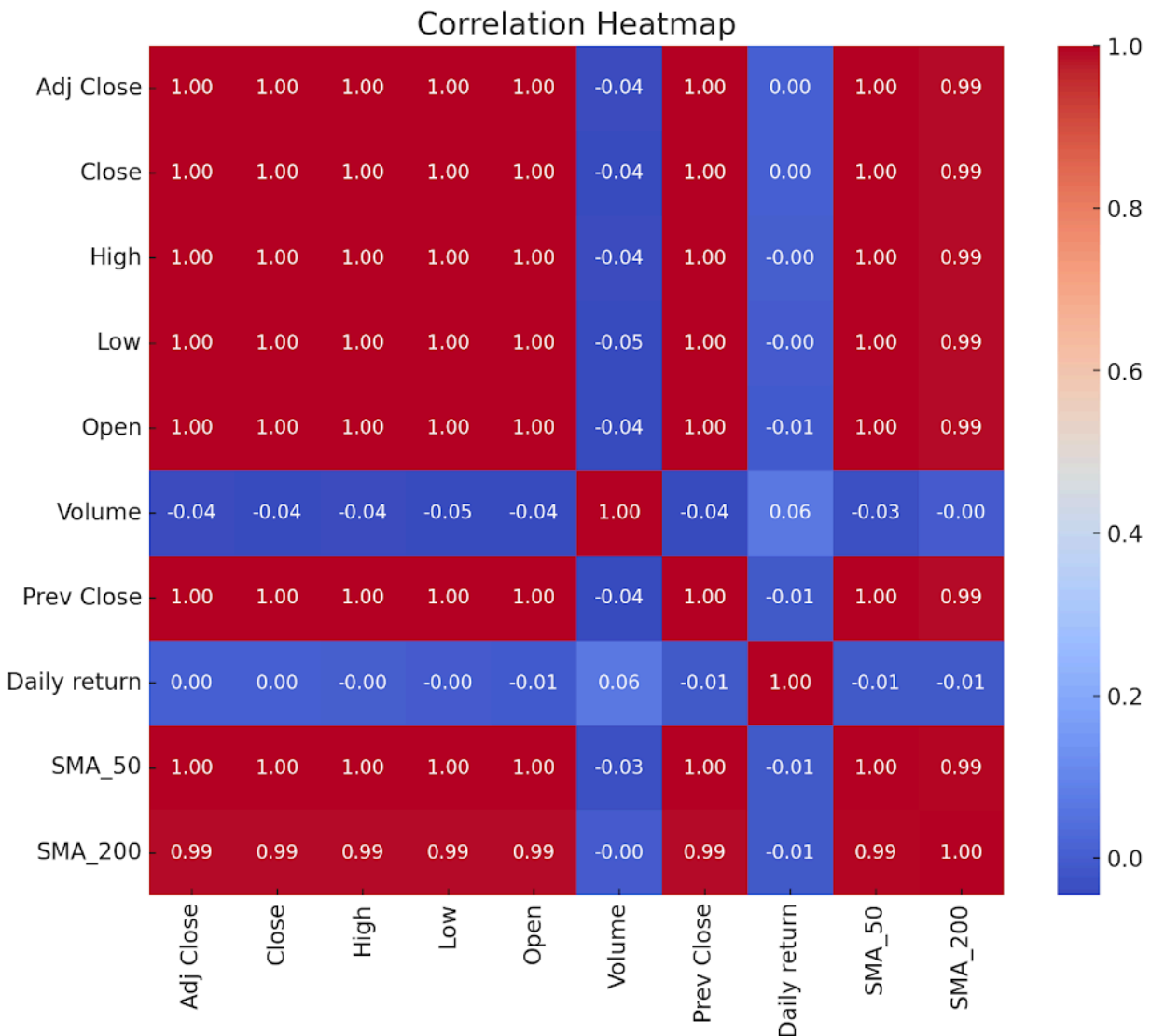


5. Trading Volume

- Trading volume varies greatly over time, with occasional spikes that may indicate increased market activity.



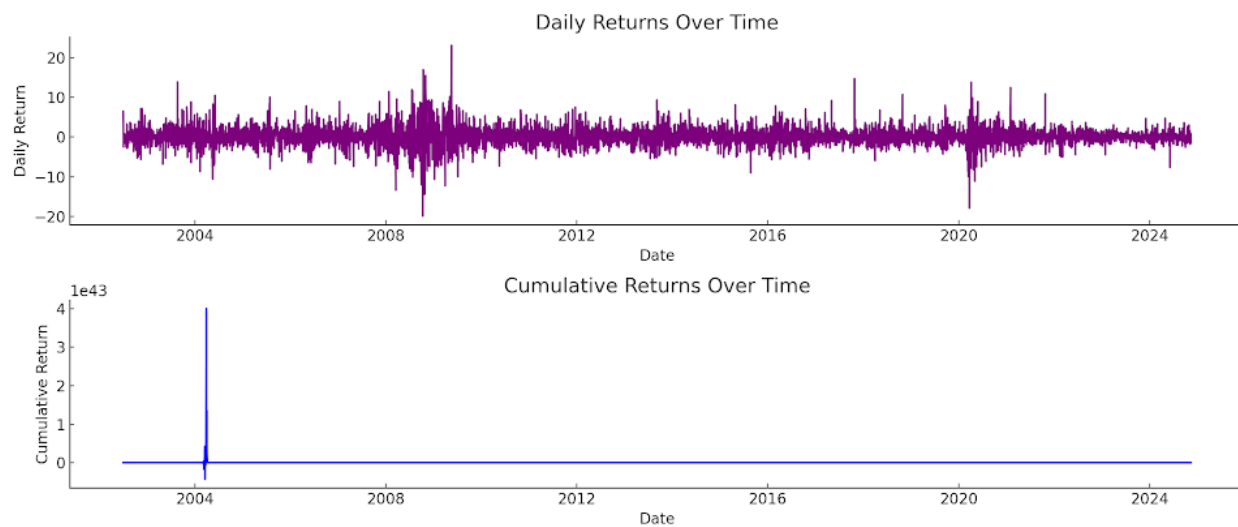
6. Correlation Heatmap



Interpretation:

- Strong correlations exist between **Close, Open, High, and Low prices**, indicating that they move together.
- **Moving Averages (SMA_50, SMA_200) are highly correlated with the Close Price**, reinforcing their importance in trend analysis.
- Volume shows a weaker correlation, meaning **trading volume alone is not a strong predictor of price movements**.

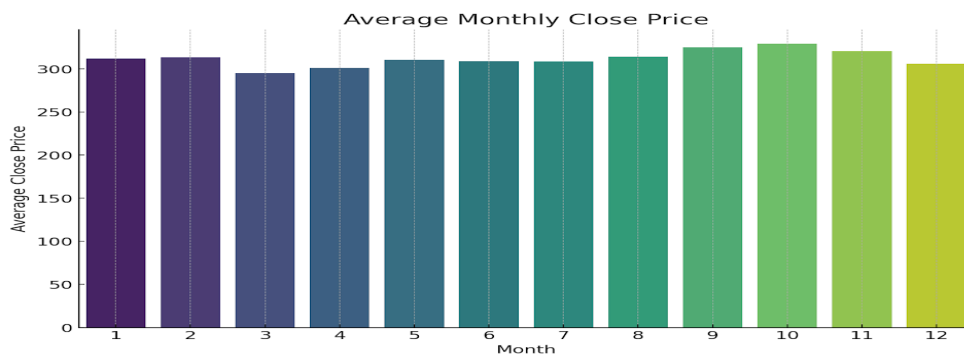
- **Daily Return Analysis:** Volatility and cumulative returns.



- **Volume vs Price Analysis:** To see how trading activity correlates with price changes.



- **Month-Wise Analysis:** Group data by month to identify trends.



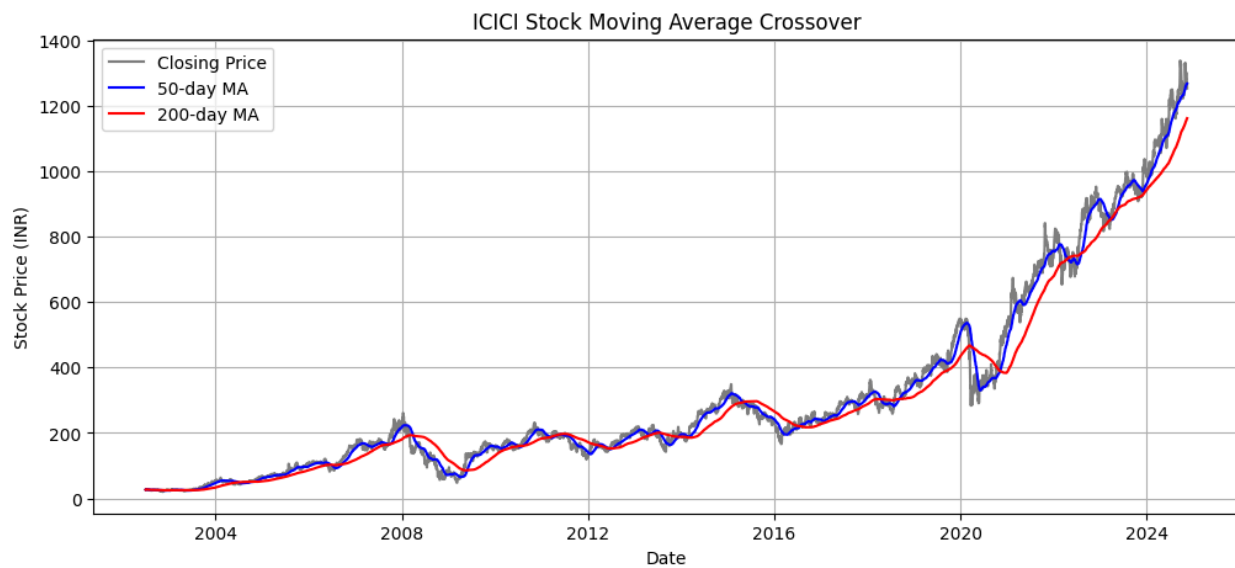
Closing Price Trend

This shows how ICICI stock has performed over time.



Moving Average Crossover (50-day & 200-day)

This helps identify bullish (buy) and bearish (sell) signals.



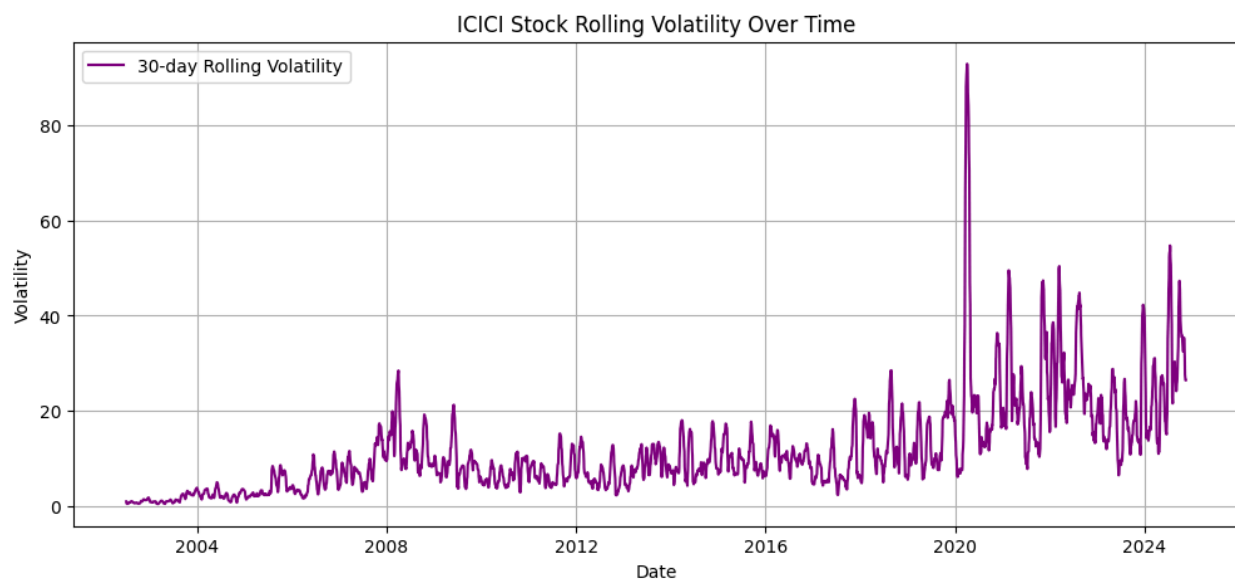
Interpretation:

- The **Close Price** fluctuates over time, reflecting market trends.
- The **50-day SMA (SMA_50)** reacts quicker to price changes, while the **200-day SMA (SMA_200)** provides a long-term trend view.
- A **bullish signal** is observed when **SMA_50 crosses above SMA_200**, indicating potential upward movement.

- A **bearish signal** occurs when **SMA_50** drops below **SMA_200**, signaling possible price decline.
- These moving averages help in identifying **trend reversals** and making **buy/sell decisions**.

Rolling Volatility (30-day Standard Deviation)

This highlights **periods of high price fluctuations** (high risk).

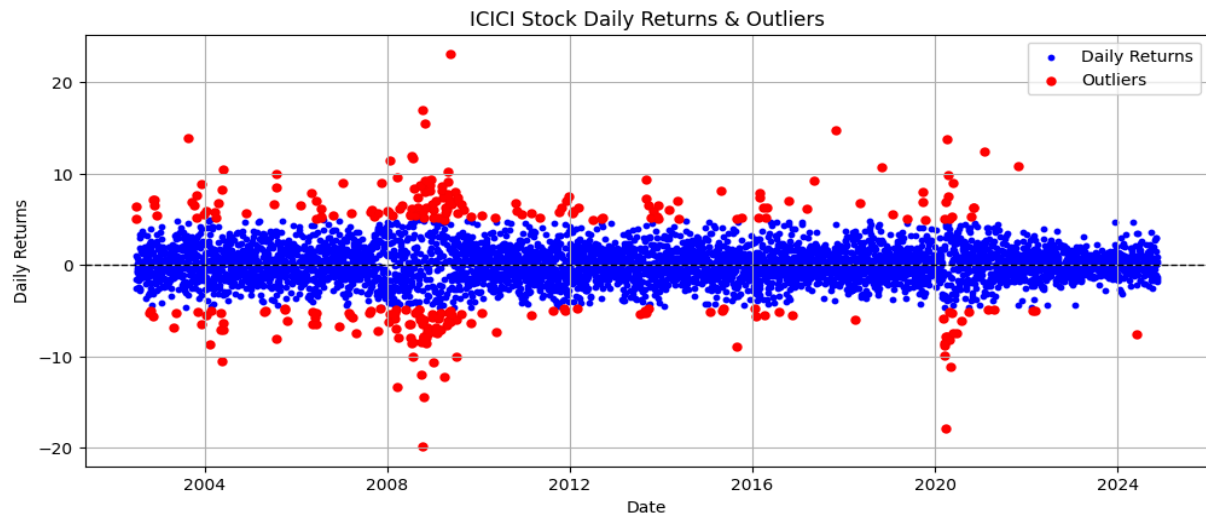


Interpretation:

- **High spikes** → Market instability (e.g., news impact, earnings reports).
- **Low values** → More predictable stock behavior.

Outlier Detection in Daily Returns

This highlights unusual stock movements (big jumps or crashes).



Interpretation:

- The **daily returns** are centered around **zero**, indicating that most price changes are small.
- The **presence of outliers** (large gains/losses) suggests days with significant market activity.
- Investors should be cautious during **highly volatile periods**, as sudden price movements can lead to unexpected gains or losses.
- **Blue dots** → Normal daily stock returns.
- **Red dots** → Abnormal price movements (due to news, economic events, etc.).

5. CONCLUSION :

- The analysis of ICICI Bank's stock performance reveals key insights that can guide investment strategies:
- Trends and Moving Averages: The evaluation of closing prices, along with the 50-day and 200-day Simple Moving Averages (SMA), highlights significant trends. Crossover points indicate potential bullish and bearish signals, essential for forecasting price movements.
- Volatility and Daily Returns: Most daily returns are modest, with occasional outliers indicating significant market activity. This volatility underscores the need for caution during unstable periods, as sudden price changes can lead to unexpected outcomes.
- Correlation and Volume Insights: Strong correlations among opening, closing, high, and low prices emphasize their interconnectedness, while the weaker correlation of trading volume suggests it may not be a reliable predictor of price movements.

6. RECOMMENDATIONS:

- To leverage these insights, investors should:
- Monitor moving averages for trading signals.
- Implement risk management strategies to mitigate losses.
- Continuously analyze market trends for informed decision-making.