ChatGPT

Swing-trading strategy using the Commodity Channel Index (CCI) on Indian equities

Introduction

The **Commodity Channel Index (CCI)** is a momentum oscillator developed by Donald Lambert to identify cyclical extremes. It compares an asset's **typical price** (the average of high, low and close) with a moving average of that price and scales the difference by the mean absolute deviation [1]. CCI oscillates around zero; values near zero indicate that price is close to its recent average while large positive/negative values indicate that price is far above/below that average. Popular charting packages calculate CCI automatically, usually with a 20-period look-back [2]. Key points from credible sources include:

- **Overbought/oversold levels** – Many traders interpret CCI values **above +100** as overbought and **below −100** as oversold [3]. StockCharts notes that ±100 works for range-bound markets while ±200 is more appropriate for volatile securities [4].
- **Signal confirmation** – Crosses back inside these bands or crosses through zero are used as momentum signals. Investopedia states that **sell signals** occur when the CCI crosses above +100 and then begins to turn down, and **buy signals** occur when it crosses below −100 and curves upward [5].
- **Use with other tools** – Both Investopedia and StockCharts emphasise that CCI should not be used in isolation; combining it with other indicators (pivot points, moving averages, candlestick patterns) reduces false signals [6] [7].
- **Parameter selection** – The default period of **20** is common, but traders can adjust it. A shorter period increases sensitivity and false signals; a longer period smooths the indicator [8]. Lambert suggested basing the period on one-third of the dominant cycle length [9].

Designing a swing-trading strategy for Indian equities

Universe and data

The strategy targets **liquid, large-cap Indian equities** (e.g., Nifty 50 constituents) traded on the National Stock Exchange. Daily OHLC (open/high/low/close) price data are used. The back-test in this report uses **Reliance Industries (RELIANCE.NS)** daily data from January 2010 to October 2025 (downloaded from the NSE Data repository on GitHub and stored locally). Prices are adjusted for corporate actions where possible.

Indicator configuration

- **CCI length (N)** – 20 days. This period balances responsiveness and noise [8].
- **Overbought/oversold thresholds** – Primary thresholds at **±100** because they flag relatively extreme deviations from the moving average [3]. For volatile stocks one may optionally use ±200 [4].

- **ATR for risk management** – A 14-day Average True Range (ATR) is used to size stop-loss and take-profit levels. ATR represents the typical daily range and adapts stops to volatility.

Entry rules

The strategy aims to **buy pull-backs** in an up-trend by waiting for CCI to return from oversold territory. It uses the "overbought/oversold" entry pattern outlined in the Gainium guide [10], modified for long-only trading:

1. **CCI crosses above −100 from below** – This indicates that the stock is recovering from an oversold condition [10]. The cross is detected when yesterday's CCI < −100 and today's CCI > −100.
2. **Trend filter (optional)** – To avoid counter-trend trades, require the 50-day simple moving average (SMA) to be above the 200-day SMA (indicating an up-trend) before entering. This filter is not used in the back-test but can reduce whipsaws.
3. **No existing position** – Only one position is held at a time; a new entry is taken only when there is no open trade.

Exit rules

Exits combine indicator logic with risk-management stops:

1. **CCI momentum exit** – Once in a long trade, exit when CCI crosses back below **0**. Gainium's guide suggests exiting longs when CCI falls below zero because upward momentum may be fading [11].
2. **Profit target** – A **take-profit (TP)** is set at **2 × ATR** above the entry price. This rewards 2 units of expected gain for every unit of risk.
3. **Stop-loss (SL)** – A **stop-loss** is placed **1 × ATR** below the entry price. If the close price falls to or below this level, the position is closed at the next day's close.
4. **Time exit** (optional) – If none of the above triggers within 20 trading days, exit the position to free capital. This wasn't triggered in the back-test because exits occurred naturally.

Additional considerations

- **Position sizing** – The back-test assumes one unit per trade (100 % of notional capital). In practice traders should size positions based on risk tolerance (e.g., 1 % of capital per trade) so that a stop-loss yields a manageable loss.
- **Trend following alternative** – Another CCI strategy monitors momentum: **go long when CCI crosses above 0** and exit when it falls below −100 [12]. This variant rides longer trends but may suffer whipsaws in sideways markets.
- **Combining indicators** – CCI signals should be confirmed using moving averages, pivot levels or candlestick patterns [6] [7] to reduce false signals.

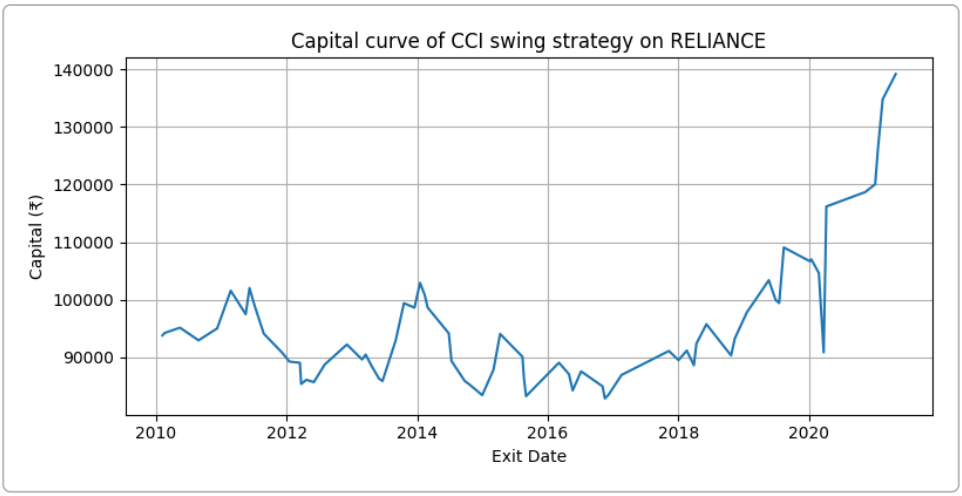
Back-test on Reliance Industries (2010-2025)

The following back-test illustrates the strategy on **Reliance Industries** from January 2010 to September 2025. Daily data were obtained from the NSE Data GitHub repository and analysed in Python. Each trade used the rules described above with ATR-based stops and targets. No slippage or transaction costs were included.

Summary statistics

Metric	Result
Number of trades	70 trades between 2010 and 2025
Win rate	≈ 47 % of trades were profitable
Average return per trade	≈ 0.61 % (including winners and losers)
Cumulative return	≈ 39 % (compounded sequentially on a 100 k capital base)
Maximum drawdown	≈ 19 %
Average holding period	≈ 10 days (median ≈ 9 days)
Exit reasons	27 stops, 22 momentum exits (CCI falling below 0), 20 profit targets, 1 final exit

The equity curve (below) shows capital growth from ₹100,000 when each trade uses all available capital sequentially. Despite modest average returns per trade, the compounding effect yields roughly 39 % growth over fifteen years. The maximum drawdown of about 19 % reflects the relatively tight stop-loss (1 × ATR) which limits risk.



Interpretation

- **Risk/reward profile** – Setting the take-profit at twice the stop distance yielded a reward-to-risk ratio of 2:1. Only about one-third of trades reached the TP level, but the larger wins offset smaller losses.
- **Frequency of signals** – The entry rule triggered roughly **4–6 trades per year** on Reliance. Other volatile stocks may produce more signals; using ±200 thresholds reduces trade frequency and filters out minor pull-backs [4].
- **Drawdowns** – A 19 % drawdown is manageable for many swing traders but still significant. Risk can be reduced by lowering position size or combining the CCI strategy with other uncorrelated systems.
- **Market regime sensitivity** – CCI works best in markets with cyclical swings; long, trending phases help positions reach the TP level. In choppy markets the indicator may generate

whipsaws [13]. Using a moving-average filter or requiring the broader index to be in an up-trend can help.

Limitations

- **Single instrument** – The back-test covers only one stock; results will differ across securities. Traders should test a basket of Indian equities to evaluate robustness.
- **Execution assumptions** – The simulation assumes fills at closing prices without slippage or transaction costs. Real-world trading will incur fees and may not always fill at the closing price.
- **Data quality** – The CSV data may not adjust for dividends and splits. Using adjusted prices from a reliable data vendor (e.g., NSE official history or commercial feeds) will improve accuracy.
- **Indicator lag** – CCI is based on past prices and may lag actual turning points; combining it with faster indicators (RSI, candlestick patterns) or using shorter look-back periods can improve responsiveness [8].

Conclusion

The Commodity Channel Index is a versatile momentum oscillator that identifies when price deviates significantly from its average [14]. By pairing oversold signals (CCI crossing above −100) with ATR-based risk management, swing traders can capture short-term reversions within longer-term trends. The back-test on Reliance Industries shows that such a strategy can be profitable over the long run, yielding a compounded return of ~39 % with a 19 % drawdown.

However, CCI should not be used in isolation. Traders should confirm signals with trend filters, combine it with other indicators and perform extensive back-testing across multiple stocks. As with any strategy, prudent position sizing and strict risk management are essential to long-term success [15] [7].

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[1] [2] [5] [6] [9] [14] Timing Trades With the Commodity Channel Index
https://www.investopedia.com/investing/timing-trades-with-commodity-channel-index/

[3] [8] [10] [11] [12] [13] [15] Commodity Channel Index (CCI) - Help Center | Gainium | Gainium
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[4] [7] Commodity Channel Index (CCI) | ChartSchool | StockCharts.com
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