

SMC Market Structure with Swing Highs/Lows + BOS/CHoCH and Zigzag Lines

I want to detect and mark Swing Highs and Swing Lows on the chart following Smart Money Concepts (SMC) market structure (HL–HH–LH–LL) with the requirements below:

1 – Candle Scanning

- Scan N candles and apply the rules for identifying Highs and Lows to find and mark Swing Highs (SH), Swing Lows (SL), and BOS/CHoCH on the chart up to the current candle.

2 – Zigzag Drawing

- Draw Zigzag lines connecting these SH and SL points.
- Use **green lines** for uptrend, **red lines** for downtrend.
- Include a toggle button to show/hide Zigzag.
- Zigzag is only drawn when price creates a BOS or CHoCH.

3 – Swing Markers

- Draw circular dots on SH/SL:
 - **Green dot above** for Swing High
 - **Red dot below** for Swing Low

4 – BOS/CHoCH Colors

- BOS/CHoCH line/text: **Green for uptrend, Red for downtrend**

◆ Rules for Market Structure

1 – Rule for End of Bullish Candle (▼ End of Uptrend)

Basic Condition:

- sh_candle: First candle where $\text{Close}[n] < \text{Close}[n-1]$
 - sh_candle_confirm: Next candle where $\text{Close}[n+1] < \text{Low}[n]$
- ➡ If both conditions are met → finish_bullish_trend = true

Special Case:

- If $\text{Close}[n+1] < \text{Close}[n-1]$ but $\text{Close}[n+1] > \text{Low}[n]$:
 1. Set sh_key_level = $\text{Low}[n+1]$
 2. Continue scanning until a candle $\text{Close}[i] < \text{sh_key_level}$
 3. Then sh_candle_confirm = $i \rightarrow \text{finish_bullish_trend} = \text{true}$
 4. SH = the candle with the highest High in that cluster

2 – Rule for End of Bearish Candle (▲ End of Downtrend)

Basic Condition:

- sl_candle: First candle where $\text{Close}[n] > \text{Close}[n-1]$
 - sl_candle_confirm: Next candle where $\text{Close}[n+1] > \text{High}[n]$
- ➡ If both are met → finish_bearish_trend = true

Special Case:

- If $\text{Close}[n+1] > \text{Close}[n-1]$ but $\text{Close}[n+1] < \text{High}[n]$:
 1. Set sl_key_level = $\text{High}[n+1]$
 2. Continue scanning until $\text{Close}[i] > \text{sl_key_level}$
 3. Then sl_candle_confirm = $i \rightarrow \text{finish_bearish_trend} = \text{true}$

4. SL = the candle with the lowest Low in that cluster
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3 – Rule for Swing High (SH)

Confirmed when:

- finish_bullish_trend = true
 - Break of Structure (BOS+) or Minor BOS (mBOS+) occurs
 - SH = highest High in the cluster between sh_candle and sh_candle_confirm
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4 – Rule for Swing Low (SL)

Confirmed when:

- finish_bearish_trend = true
 - BOS– or mBOS– occurs
 - SL = lowest Low in the cluster between sl_candle and sl_candle_confirm
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5 – Rule for BOS (Break of Structure)



In Uptrend:

- BOS when price closes above the last Swing High (lastSH)
- **Major BOS+** if lastSL > fib50
- **Minor BOS+** if lastSL < fib50



In Downtrend:

- BOS when price closes below the last Swing Low (lastSL)
- **Major BOS–** if lastSH > fib50
- **Minor BOS–** if lastSH < fib50

(fib50 = 50% retracement from previous SL to last SH or vice versa)

6 – Rule for CHoCH (Change of Character)

- Occurs when price breaks in the opposite direction of the most recent Major BOS
- Uptrend → Downtrend: CHoCH–
- Downtrend → Uptrend: CHoCH+