Enhanced Liquidation Map Indicator

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> Acknowledgments:
> We extend our heartfelt gratitude to the dedicated members of the TradingView community. Their commitment to open-source indicators has been instrumental in the evolution of this indicator. Thank you for your valuable contributions!
>
> - **Liquidation** - @Mysterysauce
> - **Open Interest Delta** - By Leviathan - @LeviathanCapital
> - **Liquidation Levels on OI** - @Seansnote97

Detailed Enhancements

Use of Percentile Rank Over Numerical Orderings

- **Statistical Precision**: Numerical rankings such as 1, 2, 3, etc., only provide ordinal information without context. Using percentile ranks embeds a statistical perspective, showing a value's position relative to the entire dataset, enabling more accurate comparative analysis.
- **Standardization for Comparison**: Percentile ranks allow for comparisons across various timeframes or datasets, something that simple numerical rankings do not permit.

Elimination of Multiplicative Factor Labels (25x, 5x, 10x)

- **Actionable Insights**: The initial use of multiplicative factors like 25x, 5x, 10x is now seen as providing limited insight. They overstate quantities without market context.

- **Focus on Robust Indicators**: Removing these labels allows analysts to concentrate on statistically sound indicators that can deliver actionable intelligence.

Modification of Price and Volume Formula

- **Original Formula Limitations**: The original formula `(close-prevclose) + volume` was simplistic, neglecting the impact of volume on price movements.
- **Enhanced Formula**: The revised formula `(close-prevclose) * volume` postulates a proportional relationship between price changes and volume, aligning with market analysis principles where larger trade volumes are understood to amplify price changes.

Weighted Close Over Average Price

- **Emphasis on Closing Price**: Weighted close prioritizes the closing price, which is a crucial indicator of market sentiment at the end of the trading period, potentially offering a truer market valuation.
- **Closing Price as Market Consensus**: The closing price represents the market's final value consensus, potentially a more reliable signal than the arithmetic mean of open, high, low, and close prices, which may be skewed by intraday volatility.

The **Liquidation Map** is a specialized TradingView indicator designed to help traders visualize potential liquidation points on a price chart, especially in the context of leveraged trading. It takes into account the Open Interest (OI) data of a trading pair and displays lines that represent the estimated prices at which leveraged positions would be liquidated, depending on the amount of leverage used (e.g., 50x or 100x).

Liquidation in Leveraged Trading

When trading with leverage, if the price moves against a trader's position, there is a point where the exchange automatically closes the position to prevent losses that exceed the trader's margin. This is known as **liquidation**.

How the Indicator Works

- **Calculates** the change in open interest adjusted by trading volume to find significant shifts in market sentiment.

- **Ranks** these changes in a percentile format to determine the severity of potential liquidation events.
- **Draws lines** on the chart to indicate where liquidation may occur for different levels of leverage, using solid or dotted lines for visual emphasis.

Understanding Percentile Rank

Percentile rank is a statistical concept that helps in understanding how a particular value compares to a dataset.

Percentile Rank Explained:

1. The indicator looks at the **absolute changes in open interest** over a specified period.
2. It calculates the **highest change** over this period, which serves as a benchmark.
3. Each change is then **ranked** according to how it compares to the rest of the data.
4. For example, if a change has a **percentile rank of 90**, it means that it is greater than 90% of all other changes.

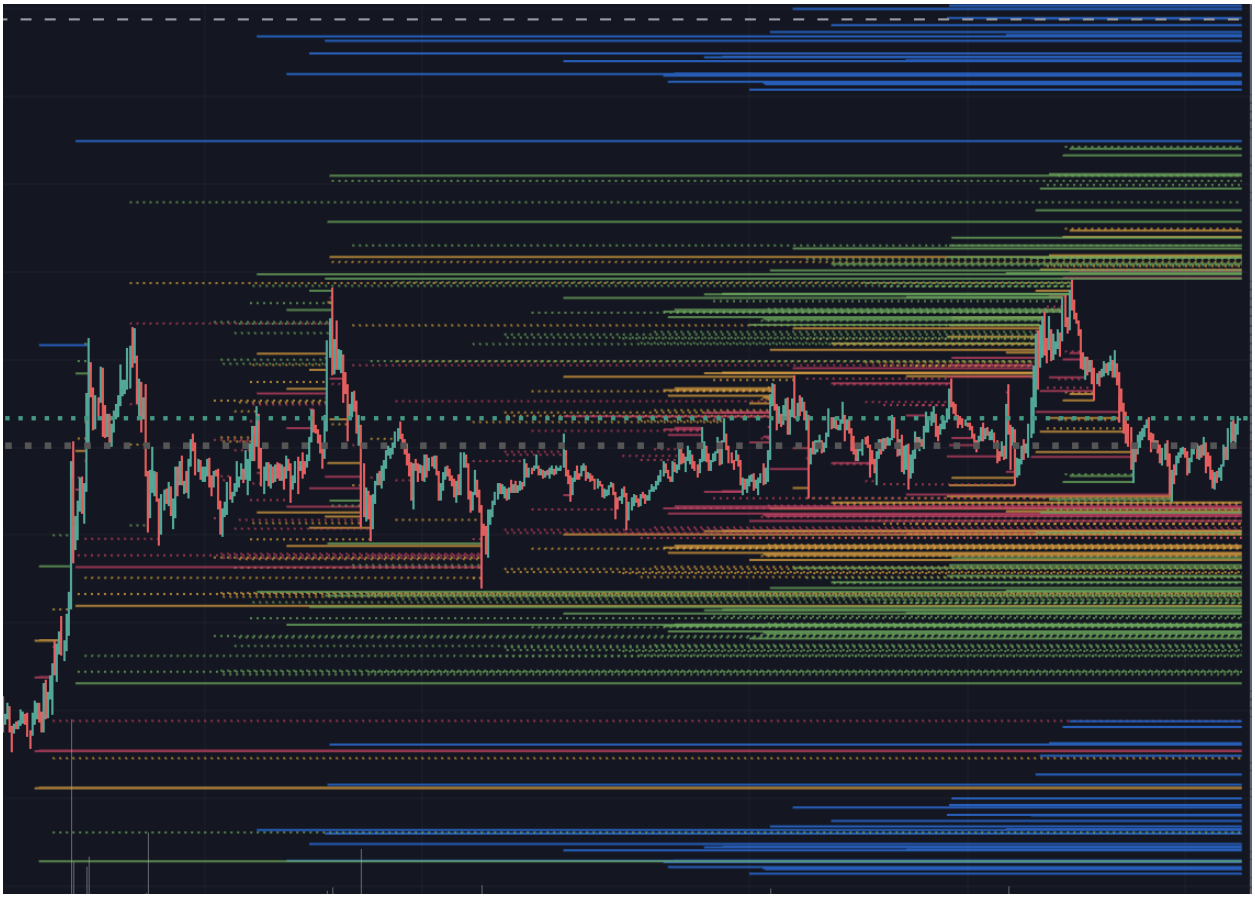
Application in the Indicator

In the **Liquidation Map** indicator, percentile ranks are used to classify the significance of open interest changes:

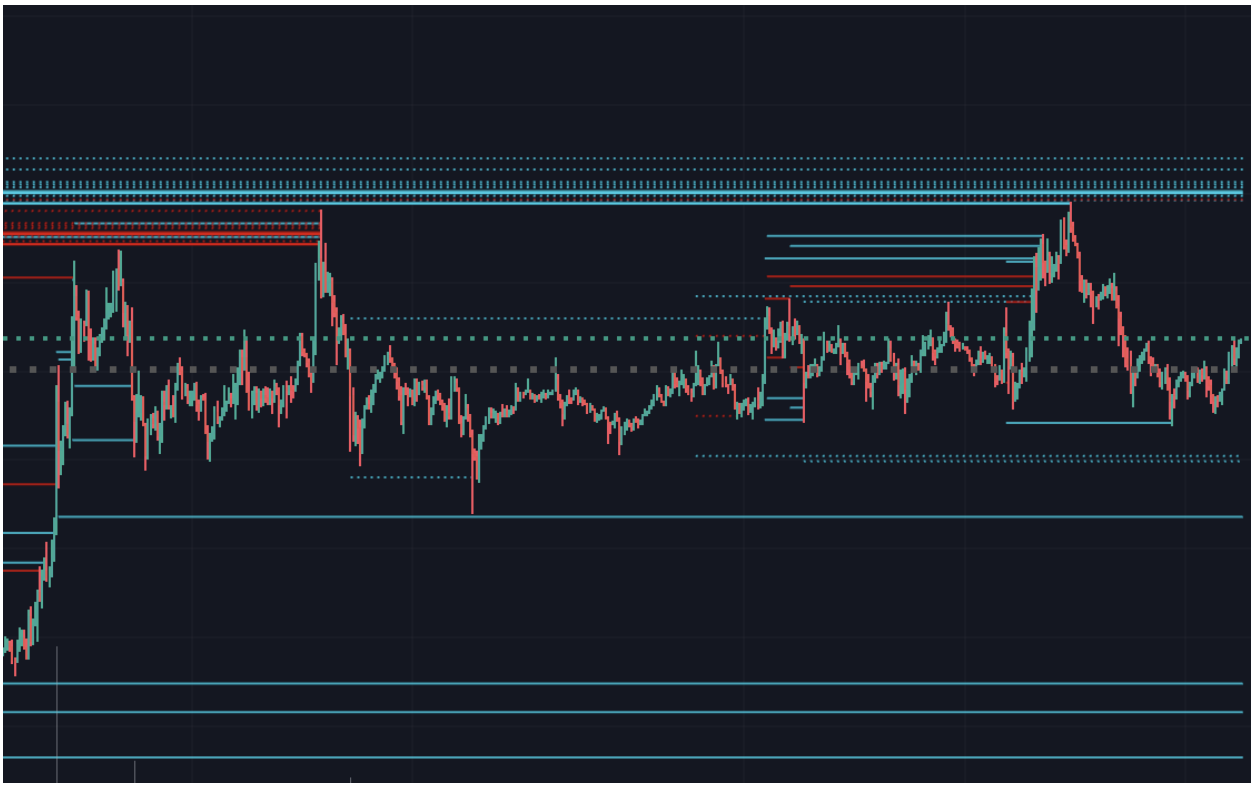
- **High percentile ranks** (close to 100) are marked with **solid lines** and indicate a higher likelihood of liquidation at that level.
- **Lower percentile ranks** (closer to 50) are marked with **dotted lines** and suggest a moderate likelihood of liquidation.

Example

Original:



Enhanced:



1. with fewer lines and a more discernible pattern. This can make it easier for a viewer to quickly grasp the chart's main points without being overwhelmed.
2. distinct color codes to represent different multiplicative factors, making it more intuitive:
    - **Red** represents a **100x** factor.
    - **Light Blue** stands for a **50x** factor.
    - **Dotted Lines**: Typically, dotted lines in charting can signify potential levels or tentative data, giving the viewer a heads-up that these levels might be of importance but may not be as strong or confirmed as solid lines.
    - **Solid Lines**: These usually indicate confirmed data points or levels of significance, giving them more weight in the analysis.

Enhanced Liquidation Map Strategy Version

Purpose:

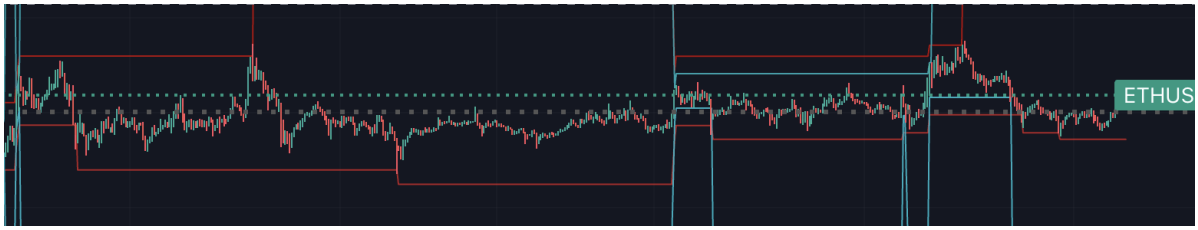
To provide potential liquidation levels as an indicator on a trading chart. Liquidation levels refer to the price points at which a trader's position will be automatically closed due to margin requirements.

Main Features:

- **Symbol Configuration**:
  The code is set up for the BINANCE exchange and tries to get a specific symbol based on the base currency followed by 'USDT.P'.
- **Open Interest (OI) Calculation**:
  It calculates the change in open interest (OI) and volume to create an OI_delta.
- **Percentile Calculation**:
  Three percentiles (90th, 75th, and 50th) are defined. The script determines where the absolute OI_delta stands with respect to these percentiles.
- **Liquidation Conditions**:
  - Determines if there's a significant change (as per the percentiles) in the OI_delta and if it's positive.
  - Based on the condition, liquidation levels are calculated for both LONG and SHORT positions with two different leverages (50x and 100x).
- **Price Level Calculations**:
  For each side (LONG/SHORT) and leverage, the script calculates potential liquidation prices. These are then stored in an array.
- **Display**:
  The indicator plots the liquidation levels on the trading chart using different color codes.
- **Cleaning Old Data**:
  If certain conditions regarding the price being outside of defined ranges or crossing liquidation levels are met, the old liquidation data is removed from the array.

Application as a Strategy:

The indicator can be used as a visual aid to determine potential stop-loss or take-profit levels. If a trader anticipates that the market might approach a liquidation level, they might set a stop-loss order just before that level to avoid automatic liquidation or set a take-profit order if they expect a rebound from that level.



If the price touches a liquidation level:

- The algorithm will search for the next liquidation level.
- If there's no subsequent liquidation level available:
  - **For LONG positions** (when traders bet on the price increasing):
    - The liquidation level is set at a value which is 90% of the current 'low' price. This essentially means that if the price falls to this newly calculated level, the LONG position will be automatically liquidated.
  - **For SHORT positions** (when traders bet on the price decreasing):
    - The liquidation level is set at a value which is 110% of the current 'high' price. This indicates that if the price rises to this newly calculated level, the SHORT position will be liquidated.

The reason for setting these extreme high or low values:

- Like `low * 0.9` for LONG and `high * 1.1` for SHORT is to prevent unnecessary liquidations in the strategy. By setting these values:
  - **For LONG positions**: It gives the asset a lot of room to decrease in price before hitting the liquidation level.
  - **For SHORT positions**: It gives the asset a lot of room to increase in price before reaching the liquidation threshold.

Note on Strategy:

The mention of adding this logic to a trading strategy refers to the fact that setting these extreme levels can influence strategy outcomes. By setting the liquidation levels extremely high or low, it's a way to essentially avoid automatic liquidations based on the close price touching the liquidation level. It's a safety measure to ensure that a temporary price spike or drop doesn't result in unintended liquidation.