

Order Flow Trading Enhancements for Sierra Chart

OFTen Indicator Suite

A suite of indicators reserved exclusively for Compass students that help to identify important events and patterns in Order Flow and other market information that often precede certain price movements.

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Introduction

The Order Flow Trading Enhancements suite provides a range of indicators that help to identify important events and patterns in Order Flow and other market information that often precede certain price movements.

The following features and indicators are included in the latest version:

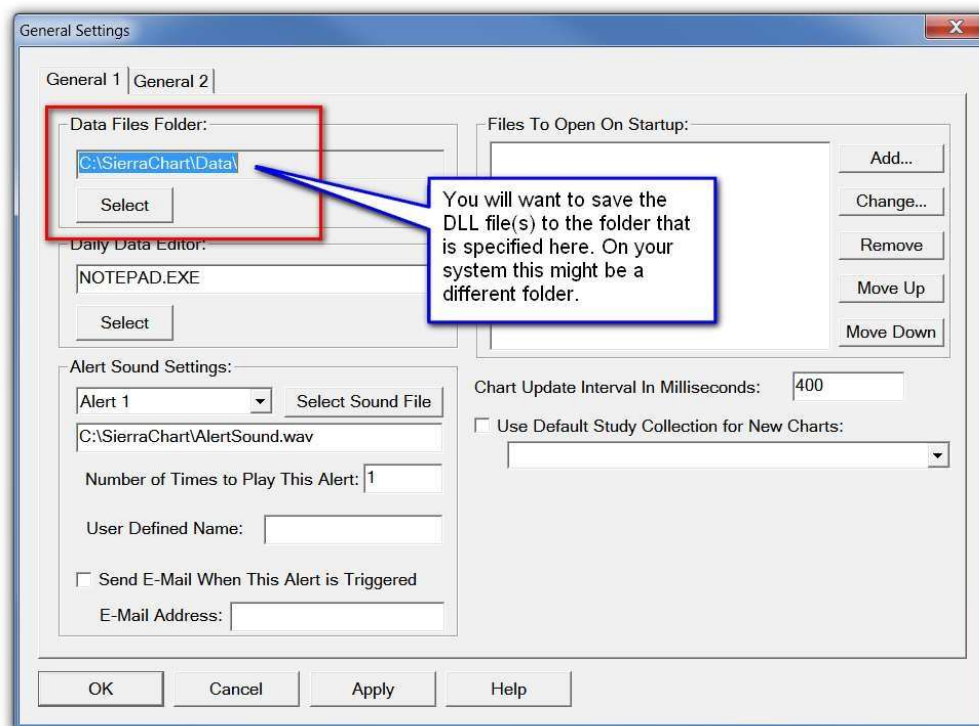
- [Auction Bars](#) : similar to Sierra Chart Reversal Bars, but with an improved mapping of directional moves and reversals.
- [Bearish/Bullish Momentum](#): these indicators look for patterns in bid/ask volumes on three adjacent price levels to identify bearish or bullish price action.
- [Buying/Selling Exhaustion](#) these indicators look for patterns in bid/ask volumes on three adjacent price levels, close to the high/low of the bar, in order to identify weakness in buying or selling activity.
- [Volume Nodes](#) – this indicator identifies high volume price clusters within a bar and uses the placement of HVNs and POC on the bar to identify responsive buying/selling and initiated buying/selling.
- [Price Rejection](#) – identifies price levels at which buyers or sellers attempted to move price beyond those levels but failed to carry it through
- [Absorption Zones](#) –identifies absorption that occurs near the bar High/low.
- [Stacked Imbalances](#) – identifies zones where buying or selling imbalances are found on a number of consecutive price levels.
- [Value Monitor](#) – using a selected anchor point, the indicator monitors the movements of the main chart symbol against four correlated markets and signals any divergent moves in intrinsic value as possible trade opportunities. Optionally, a filter can be applied to signal only when price is close to wholesale price levels for the selected market.
- [Market Divergence](#) – the indicator checks moves between swing highs and lows on the main market and on a second market or study in order to identify divergent moves. Divergences can help to determine whether price is likely to reverse or a trend is likely to continue.
- [Volume Reversal](#) - uses price action and volume to identify a chart pattern that signals an imminent reversal.
- [Volume Triggers](#) identifies signals for shakeouts, traps, end of trend, and supply and demand bars that help to build a picture of market behaviour.
- [Market Maker Reversal](#) – uses a two-bar combination followed by a low volume test to identify market maker intervention prior to a reversal.
- [Pressure Line](#) - – usually present on Ray’s charts to identify volume divergence based on shifts in buying and selling pressure as the market moves through auction cycles.
- [Formula](#) – a simple utility to calculate spreads and value lines from chart data.
- [Volic](#) – shows where the speed of trading increases substantially, indicating the presence of institutional activity, and indicates whether the increased activity is on the bid or the ask.
- [Stopping Volume](#) – the indicator highlights where high volume arrives to halt the current price movement.

- [Measured Move](#) – the indicator monitors price action to identify minor and major institutional price levels and plot the rolling 50 levels. These levels can be used to identify potential targets in measured price moves and will often serve as important support/resistance levels.
- [Full VZscore](#) – based on the standard Zscore indicator, it uses a volume Zscore to refine the price Zscore and give a better quality signal.
- [Time Segmented Volume](#) – segments a market's price and volume according to time intervals. The price and volume data are then compared to identify periods of accumulation (buying) and distribution (selling).
- [ABCD](#) – the indicator identifies price levels that meet certain criteria in terms of the length of a sequence of up and down moves. These levels can often be used in conjunction with measured moves to identify key support or resistance zones.
- [BSG \(Before She Goes\)](#) – identifies price action patterns that indicate that a squeeze trade is imminent-
- [Failed Auction / Level 2 Buyers and Sellers](#) – identifies buyer and seller auctions that have failed to retest top or bottom edges, and the appearance of level 2 buyers and sellers.
- [Book Ratio](#) – displays book ratio values that can be used to identify exhaustion and stopping volume levels.
- [Market Maker Model](#) – identifies delta divergence that indicate changes in Market Maker bias.
- [VPIN](#) – identifies the presence of toxic order flow, which will help to determine the probable reaction of the Market Maker and, in consequence, the likely direction of the market.
- [Ice Order](#) – indicates the existence of iceberg orders where we see traded volumes that are significantly higher than the average liquidity available at a given price.
- [Stop Run](#) – identifies price levels within a bar at which a zero bid or ask volume indicates a rapid move through those levels typically seen in a stop run.
- [Block Trades](#) – shows the number and direction of large block trades that take place at different price levels on a bar.
- [Depth of Market](#) – plots the order book bid/ask volumes over a specified range of price levels.
- [Stacking and Pulling](#) – plots, in histogram form, the net stacking and pulling on the DOM over a specified number of price levels.
- [Gold Scalper](#) – uses correlated Silver and Copper markets together with Pressure Line and Cumulative Delta to determine potential short-term price movement of the Gold market.

Installation

When you purchase OFten, the DLL will be delivered automatically to your Sierra Chart Data folder.

The location of your Data Files Folder can be found by selecting **Global Settings >> General Settings** on the menu. The folder is displayed in the Data Files Folder box. This is usually C:\SierraChart\Data. Refer to the image below.



Note: you will need to restart Sierra in order to complete the authorization of your Sierra Account Name to use the indicators.

To ensure that you can use all features of the indicators, check that you are running the latest version of Sierra Chart. Click on Help >> Download Current Version.

Once you have installed the OFten package, you can access the individual indicators by clicking Analysis>>Studies >>Add Custom Study and then scroll down the list of studies until you find OFtenIndicatorSuite. Click on the small + sign on the left to open the list of individual indicators and then select the indicator you require.

Note: when you receive a new release for OFten, the new version and the old version can co-reside in your Data folder, and you can, in fact, plot individual indicators from different versions on the same chart. In this way you can gradually migrate your indicators from the old version to the new.

Auction Bars

Parameters

- Directional Move (in ticks) –the number of ticks that price must move, in one direction, before a reversal or rotation in the opposite direction can take place. Default value : 8.

- Reversal (in ticks) –the number of ticks that price must move in the direction opposite to the initial directional move before a new auction bar is opened. Default value: 4.

Study Settings: Auction Bars 5-3, ID:3

Settings and Inputs | Subgraphs | Alerts

Input Name	Input Value
Directional Move (in ticks): (In:1)	5
Reversal (in ticks): (In:2)	3

Standard Precedence

Based On:
 <Main Price Graph>

Short Name:

IMPORTANT : In order for the Auction Bars to display correctly, the Chart Bar Period Type must be set to 1 trade per bar.

Go to Chart Settings >> Main Settings and set Bar Period Type to Number of Trades Per Bar, and the Setting to 1.

Chart Settings - Auction Bars 5-3 - 30yr US Treasury Bonds (Globex): March 2018

Main Settings | Advanced Settings | Advanced Settings 2 | Advanced Settings 3 | Alerts

Date Range In File (yyy-mm-dd):
 From: 2017-09-18 To: 2018-01-04

Chart Data Type:
 Intraday Chart

Historical Chart Bar Period:
☒ Days: 1
☐ Weekly
☐ Monthly
☐ Quarterly
☐ Yearly

☒ Use Number Of Days To Load
 Days To Load: 10

☐ Adjust Proportional With Bar Period

☐ Use Date Range

Market Depth: 10

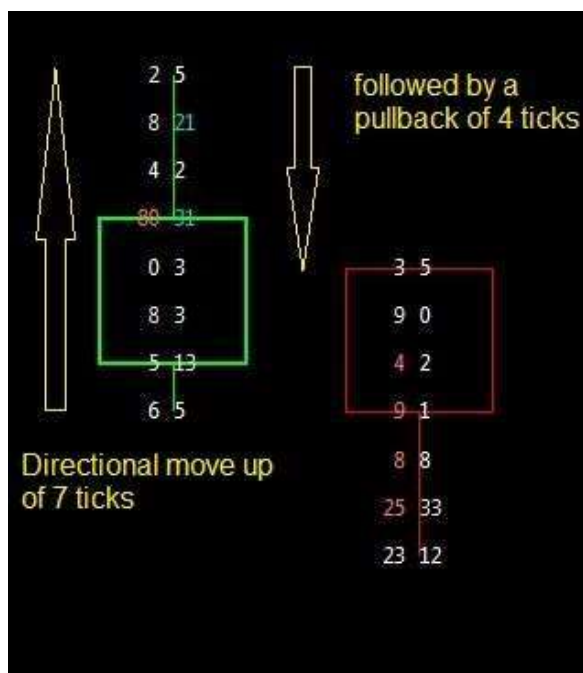
Bar Period Type:
 Number Of Trades Per Bar

Setting: 1

Gap Fill - None

New Trend Bar V

Graph Draw Type:

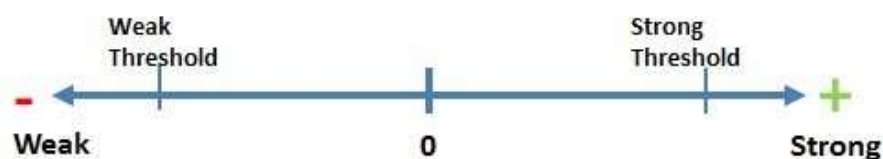


In the example shown above, we are using a 6-4 setting on a CL chart. The green bar has a directional up move of 7 ticks, and so is greater than our setting of 6. Then there is a pullback of 4 ticks, which causes the new auction bar to be opened.

Bid/Ask Volume Strength and Weakness

In the Bullish/Bearish Momentum and Exhaustion indicators described below, we use the concepts of Bid/Ask Volume strength and weakness as a means to determine how the control of current price action transitions between buyers and sellers. We can use patterns of strength and weakness over consecutive price levels in a bar to identify these transitions.

The bid/ask delta measured on a diagonal basis is compared to the total volume to calculate the volume strength. If, for example, we have a bid volume of 300 and an ask volume of only 25, then clearly the bid volume would be classed as strong because the delta (bid volume – ask volume) is positive and represents a substantial portion of the total of bid and ask volumes. Correspondingly, the ask volume would be classed as weak because the delta of (ask volume – bid volume) is negative and represents a very small portion of the total volume. The calculated delta ratio at each price level will therefore lie on a scale from negative to positive values.



In order to make a clear definition of whether bid /ask volume is strong, or somewhat strong, or neutral, or weak, or somewhat weak, we set thresholds for strength and weakness. A delta ratio that is positive and higher than the strength threshold is classed as Strong, while one that is negative and lower than the weakness threshold is classed as Weak.

We use the following categories to define patterns:

Weak: Negative with a value below the weakness threshold

Negative to Weak – any value below zero

Positive to Strong – any value above zero

Greater than weak – any value higher than the weakness threshold all the way up to, and including, Strong

Less than Strong – any value lower than the Strength threshold, all the way down to and including Weak.

Strong: Positive with a value above the strength threshold.

Any – any value, positive or negative or zero.

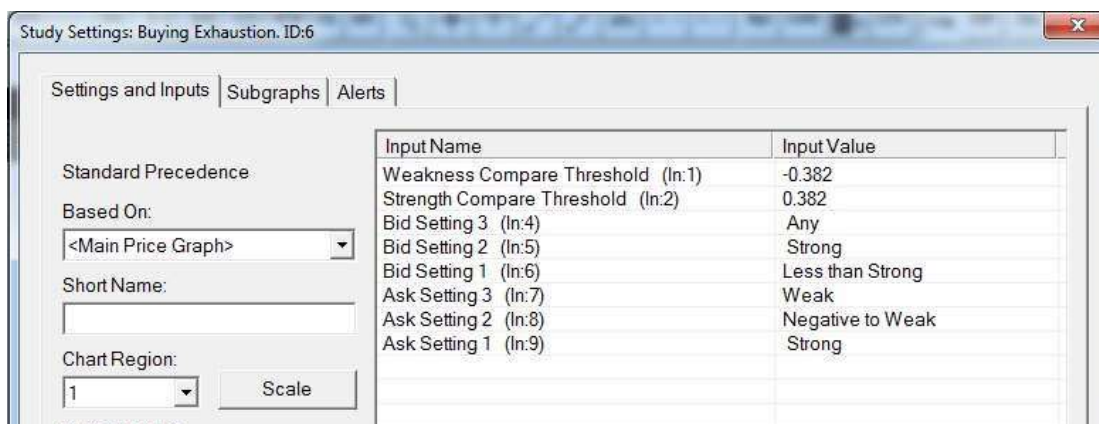
To define a pattern on three consecutive price levels, we list the sequence of delta ratio strength/weakness categories that we expect to see in a given scenario. For example, if we were looking for buying exhaustion at a top edge, then we would look for buying to reduce as price went higher, in other words, we expect the ask volume to weaken. At the same time, we might expect additional selling as price rises, i.e. the bid volume would strengthen.

Our pattern might therefore look like this:

Bid Setting 3	Any	Weak	Ask Setting 3
Bid Setting 2	Strong	Negative to Weak	Ask Setting 2
Bid Setting 1	Less than Strong	Strong	Ask Setting 1

A possible Buying Exhaustion pattern

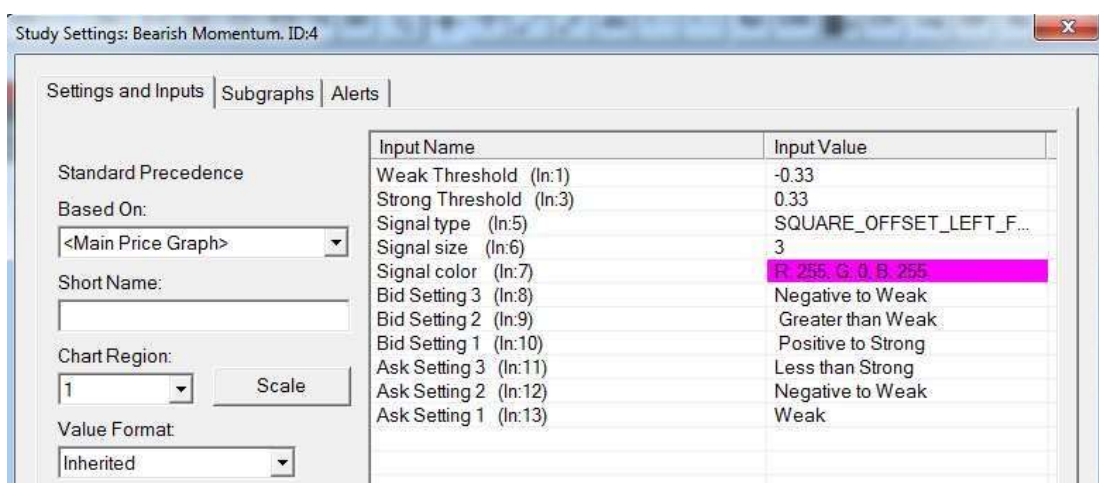
This pattern would be entered in the Buying Exhaustion parameters in the following way:



Bearish Momentum

This indicator is used to check for increasing momentum on the sell side by comparing diagonal bid and ask volumes on three consecutive price levels on a bar.

Parameters



- **Weak Threshold** – this parameter controls the level at which a negative delta ratio will be classified as Weak. In order to make the Weak classification more restrictive by using it only for extremely low ratios, enter a more negative number. However, the number cannot be less than -1.
Default value: -0.33
- **Strong Threshold** – this parameter controls the level at which a positive delta ratio will be classified as Strong. In order to make the Strong classification more restrictive by using it only for extremely high ratios, enter a more positive number. However, the number cannot be greater than +1. Default value: 0.33

- Signal type - the default signal is a small square plotted to the left of the bar at the price level where the bearish momentum pattern is matched. This will appear at the lowest of the three price levels being compared against the pattern. If required, a different signal type can be selected. Refer to the available types on the following page <https://www.sierrachart.com/index.php?page=doc/ChartStudies.html> and search for Draw Types.
- Signal Size – this parameter can be used to adjust the size of the signal. Default value: 3.
- Signal Color – if required, a different color can be selected for the signal by adjusting this parameter.
- Bid Setting 3 / 2 / 1 – Enter the pattern types to be matched on the three consecutive bid volumes. Bear in mind that for bearish momentum, we expect to see increasing bid strength on a down move, and therefore Bid Setting 3 will normally have a less strong setting than Bid Setting 1. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.

□

Ask Setting 3 / 2/ 1 – Enter the pattern types to be matched on the three consecutive ask volumes. Bear in mind that for bearish momentum, we expect to see increasing ask weakness on a down move, and therefore Ask Setting 3 will normally have a less weak setting than Ask Setting 1. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.

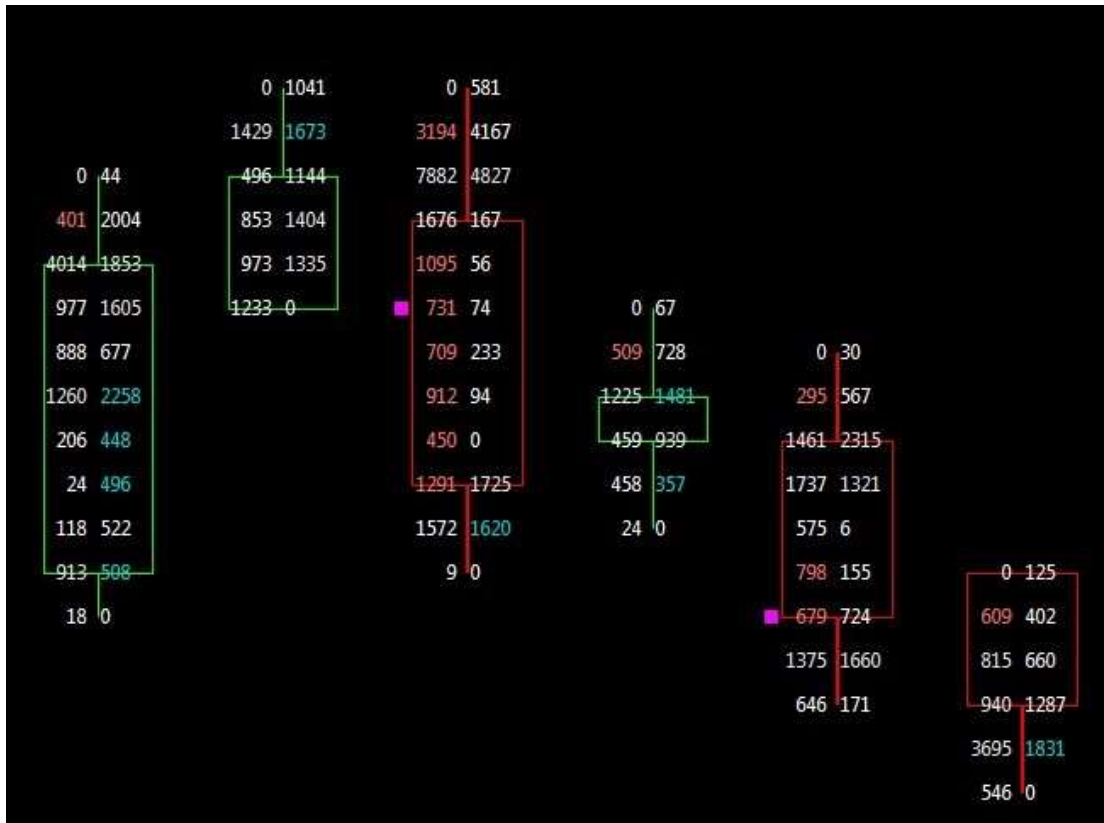
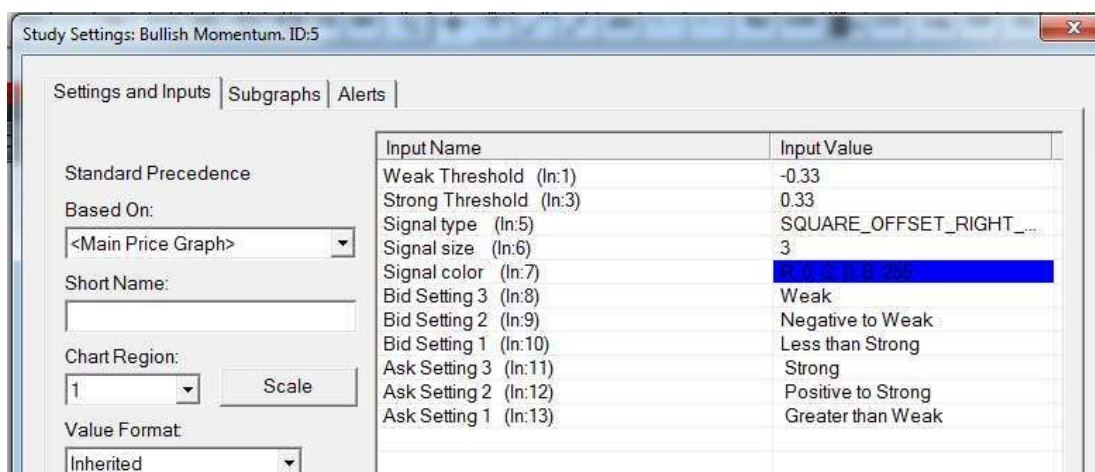


Figure 1 Bearish Momentum on a 5-3 Auction Bar chart of the ES.

Bullish Momentum

This indicator is used to check for increasing momentum on the Buy side by comparing diagonal bid and ask volumes on three consecutive price levels on a bar.

Parameters



- **Weak Threshold** – this parameter controls the level at which a negative delta ratio will be classified as Weak. In order to make the Weak classification more restrictive by using it only for extremely low ratios, enter a more negative number. However, the number cannot be less than -1.
Default value: -0.33
- **Strong Threshold** – this parameter controls the level at which a positive delta ratio will be classified as Strong. In order to make the Strong classification more restrictive by using it only for extremely high ratios, enter a more positive number. However, the number cannot be greater than +1. Default value: 0.33
- **Signal type** - the default signal is a small square plotted to the right of the bar at the price level where the bullish momentum pattern is matched. This will appear at the highest of the three price levels being compared against the pattern. If required, a different signal type can be selected. Refer to the available types on the following page
<https://www.sierrachart.com/index.php?page=doc/ChartStudies.html> and search for Draw Types.
- **Signal Size** – this parameter can be used to adjust the size of the signal. Default value: 3.
- **Signal Color** – if required, a different color can be selected for the signal by adjusting this parameter.
- **Bid Setting 3 / 2 / 1** – Enter the pattern types to be matched on the three consecutive bid volumes. Bear in mind that for bullish momentum, we expect to see increasing bid weakness on an up move, and therefore Bid Setting 1 will normally have a less weak setting than Bid Setting 3. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.
Ask Setting 3 / 2 / 1 – Enter the pattern types to be matched on the three consecutive ask volumes. Bear in mind that for bullish momentum, we expect to see increasing ask strength on an up move, and therefore Ask Setting 1 will normally have a less strong setting than Ask Setting 3. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.

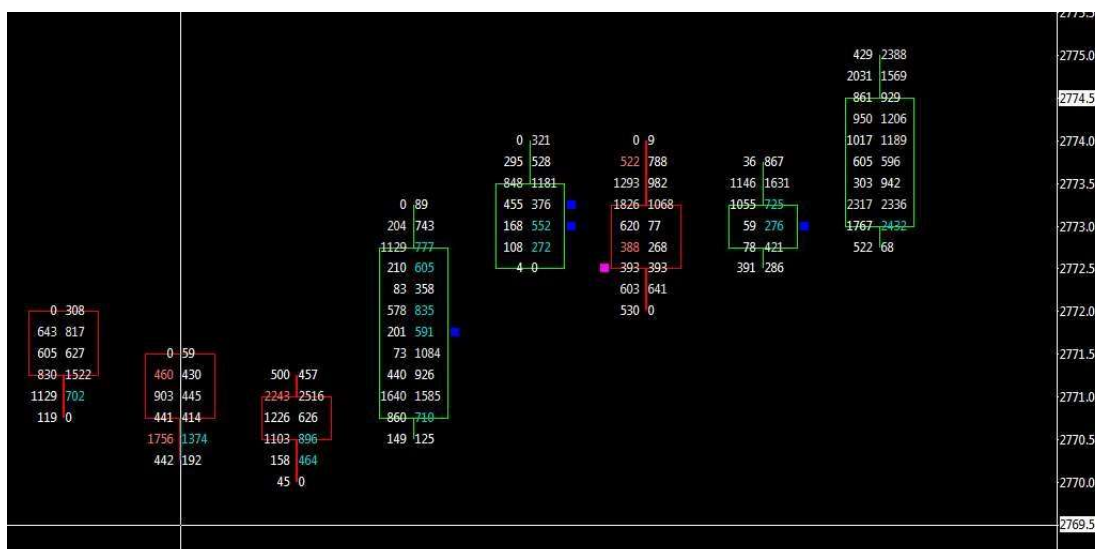


Figure 2 Bullish Momentum on the ES.

Bullish Momentum marks the growing strength in buying activity as they drive price away from the low. Note how bullish momentum appeared twice at the 2773 level before a major buying imbalance at the same price started a strong move higher.

Selling Exhaustion

This indicator is used to check for diminishing selling activity at the low of a down bar by comparing diagonal bid and ask volumes on three consecutive price levels at the low. Parameters

Study Settings: Selling Exhaustion. ID:4

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

Short Name:

Chart Region:

Value Format:

Input Name	Input Value
Weakness Threshold (In:1)	-0.33
Strength Threshold (In:2)	0.33
Bid Setting 3 (In:4)	Less than Strong
Bid Setting 2 (In:5)	Negative to Weak
Bid Setting 1 (In:6)	Weak
Ask Setting 3 (In:7)	Greater than Weak
Ask Setting 2 (In:8)	Strong
Ask Setting 1 (In:9)	Any
Use Alerts? (In:10)	Yes
Alert Sound (In:11)	1

- Weak Threshold – this parameter controls the level at which a negative delta ratio will be classified as Weak. In order to make the Weak classification more restrictive by using it only for extremely low ratios, enter a more negative number. However, the number cannot be less than -1.
Default value: -0.33

- Strong Threshold – this parameter controls the level at which a positive delta ratio will be classified as Strong. In order to make the Strong classification more restrictive by using it only for extremely high ratios, enter a more positive number. However, the number cannot be greater than +1. Default value: 0.33
- Bid Setting 3 / 2/ 1 – Enter the pattern types to be matched on the three consecutive bid volumes at the low. Bear in mind that for selling exhaustion, typically we will see some increasing weakness in the bid volume as it nears the low, and therefore Bid Setting 1 will normally have a less strong setting than Bid Setting 2 or 3. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.
- Ask Setting 3 / 2/ 1 – Enter the pattern types to be matched on the three consecutive ask volumes at the low. Bear in mind that for selling exhaustion, we expect to see increasing ask strength as it moves away from the low, and therefore Ask Settings 2 and 3 will normally have positive / strong settings. Note that Ask Setting 1 is best set to “Any” because at the low of the bar, there is no diagonally opposite bid volume below the ask volume. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.
- Use Alerts?
If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.
Alert Sound
If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.

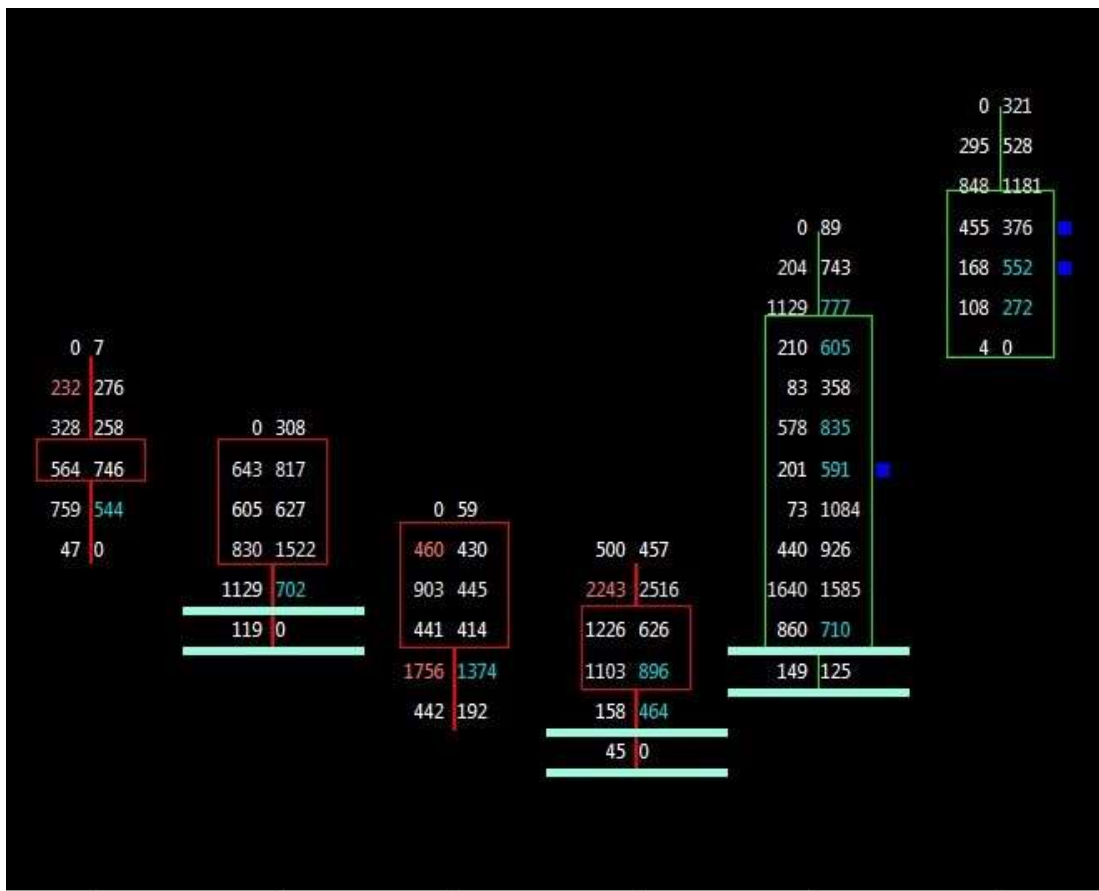


Figure 3 Selling Exhaustion indicates the end of the down move

As we approach the end of the down move, selling exhaustion starts to appear and eventually the buyers take over and move price up strongly.

Buying Exhaustion

This indicator is used to check for diminishing buying activity at the high of an up bar by comparing diagonal bid and ask volumes on three consecutive price levels at the high. Parameters

Study Settings: Buying Exhaustion. ID:5

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

<Main Price Graph>

Short Name:

Chart Region:

1

Scale

Input Name	Input Value
Weakness Threshold (In:1)	-0.33
Strength Threshold (In:2)	0.33
Bid Setting 3 (In:4)	Any
Bid Setting 2 (In:5)	Strong
Bid Setting 1 (In:6)	Positive to Strong
Ask Setting 3 (In:7)	Negative to Weak
Ask Setting 2 (In:8)	Negative to Weak
Ask Setting 1 (In:9)	Less than Strong
Use Alerts? (In:10)	Yes
Alert Sound (In:11)	1

- **Weakness Threshold** – this parameter controls the level at which a negative delta ratio will be classified as Weak. In order to make the Weak classification more restrictive by using it only for extremely low ratios, enter a more negative number. However, the number cannot be less than -1.
Default value: -0.33
- **Strength Threshold** – this parameter controls the level at which a positive delta ratio will be classified as Strong. In order to make the Strong classification more restrictive by using it only for extremely high ratios, enter a more positive number. However, the number cannot be greater than +1. Default value: 0.33
- **Bid Setting 3 / 2/ 1** – Enter the pattern types to be matched on the three consecutive bid volumes at the high. Bear in mind that for buying exhaustion, typically we will see some strengthening in the bid volume as it nears the high, and therefore Bid Settings 1 and 2 will normally have positive / strong settings. Note that Bid Setting 3 is best set to “Any” because at the high of the bar, there is no diagonally opposite ask volume above the bid volume. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.
- **Ask Setting 3 / 2/ 1** – Enter the pattern types to be matched on the three consecutive ask volumes at the high. Bear in mind that for buying exhaustion, we expect to see increasing ask weakness on the up move, and therefore Ask Setting 3 will normally have a less strong setting than Ask Setting 1. Refer to the section on Bid/Ask Volume Strength and Weakness for details of the pattern types available.
- **Use Alerts?**
If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.
Alert Sound
If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.

□



Figure 4 Buying Exhaustion starts to appear as we reach the top edge

As we approach the end of the up move, buying exhaustion starts to appear and eventually the sellers take over and move price down.

Volume Nodes

A Volume Node in OFten is defined as a number of consecutive price levels that contain the highest volumes within a bar. We can analyze the placement of these volume nodes on the bar to determine what type of trading action is taking place. Parameters

Study Settings: Volume Nodes. ID:2

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

Short Name:

Chart Region:

Value Format:

Input Name	Input Value
Node Concentration (In:1)	3
Show Secondary Levels? (In:2)	No
Show Bar Classification? (In:3)	No
Responsive Spread (In:4)	4
Initiating Spread (In:5)	6
Classification Offset (In:6)	3
Show Delta? (In:7)	Yes
Offset for Delta? (In:8)	2
Delta Color (In:9)	R: 192, G: 192, B: 192
Show Rotate Delta? (In:10)	Yes
Auction Bar Chart Study Reference (In:11)	#7.ID3

- Node Concentration – this parameter is used to control the density of the nodes that we display. The Concentration value must be in the range 1 to 5, and it identifies

the volume strength needed in order for a given price level to qualify as part of a volume node. If we set the value to 1, then only a low volume strength is needed, and we will see many volume nodes on the bar. If we set the Concentration to 5, then a high volume strength is needed to qualify as part of a volume node, and we will see very few volume nodes on the bar.

Note that, even with a low Concentration value, if the volume is spread evenly across a large bar, then volume nodes may not be displayed. This is because there is no specific node or nodes that represent a concentration of trading activity.

However, the POC will always be displayed on each bar and will always form part of a volume node.

Default value: 3

- Show Secondary Levels – as a default, the POC will be displayed for each bar. If the Show Secondary Levels parameter is set to Yes then secondary levels of high volume nodes will also be displayed. The number of secondary levels displayed will depend upon the Node Concentration setting (see above).
- Show Bar Classification – if set to Yes, the indicator will display one of the following classifications above or below the bar:
 - o RB – Responsive Buying o
 - RS – Responsive Selling o BIT
 - Buyer Initiated Trade

- o SIT – Seller Initiated Trade
- o NAU – Neutral Auction Up
- o NAD – Neutral Auction Down

The classifications NAU and NAD are assigned to bars where the POC distance from the bar high or low falls between the values set for Responsive Spread and Initiating Spread. NAU for an up bar: NAD for a down bar.

- Responsive Spread –this parameter is only used if the Bar Classification is set to Yes. The Responsive Spread is entered as a number of ticks and it is used to identify when the POC is close to the extreme of a bar, in which case we can say that responsive buying or selling is taking place. If the Responsive Spread is entered as 4, then, on an up bar, if the POC lies within 4 ticks of the high, we mark the bar as a Responsive Selling bar because the increased volume near the high of the bar indicates that sellers stepped in to try to prevent price from moving higher. Similarly, on a down bar, if the POC lies within 4 ticks of the low, we mark the bar as a Responsive Buying bar because the increased volume near the low of the bar indicates that buyers stepped in to try to prevent price from moving lower. Default value: 4.
- Initiating Spread - this parameter is only used if the Bar Classification is set to Yes. The Initiating Spread is entered as a number of ticks, and it is used to identify when the POC is beyond a certain distance from the extreme of a bar, indicating that more aggressive buying or selling has been initiated and has driven price well away from the POC. If the Initiating Spread is entered as 6 then, on an up bar, if the POC is at least 6 ticks below the high, we mark the bar as a Buyer Initiated Trade because the large move up beyond the increased volume at the POC indicates that buyers have overcome the seller resistance at the POC and have aggressively pushed price higher. Similarly, on a down bar, if the POC is at least 6 ticks above the low, we mark the bar as a Seller Initiated Trade because the large move down beyond the increased volume at the POC indicates that sellers have overcome the buyer resistance at the POC and have aggressively pushed price lower. Default value: 6.
- Classification Offset – this parameter is only used if the Bar Classification is set to Yes. It determines how far above or below the bar the Classification symbol will be displayed.
- Show Delta? – if set to yes, then the overall delta for the bar (sometimes referred to as the probe delta) will be displayed above an up bar and below a down bar. Delta is calculated as the overall Ask volume minus the overall Bid volume.
- Offset for Delta – The number of ticks above or below the bar at which the overall delta is to be displayed.
- Delta Color – the text for the Delta and Rotate Delta can be set to any desired color.

- Show Rotate Delta? – The Rotate Delta is only meaningful if Auction Bars are being used. It is calculated by taking the Ask volume minus the Bid volume on the diagonal for each level in the rotation- For example, if the rotation or pullback setting in the Auction Bar study is 3 then the Rotate Delta will be the sum of (Ask Volume 2 – Bid Volume 1) + (Ask volume 3- Bid Volume 2).
Note: the reference to the Auction Bar Chart Study on the chart must also be set (see next parameter).
- Auction Bar Chart Study Reference – this parameter is only used if the Show Rotate Delta parameter is set to Yes and Auction Bars are being used on the chart. There are two drop-down menus for this parameter. From the first, select the current chart number, i.e. the chart on which you wish to display the Rotate Delta. From the second, select the Auction Bars study ID (see example below)-

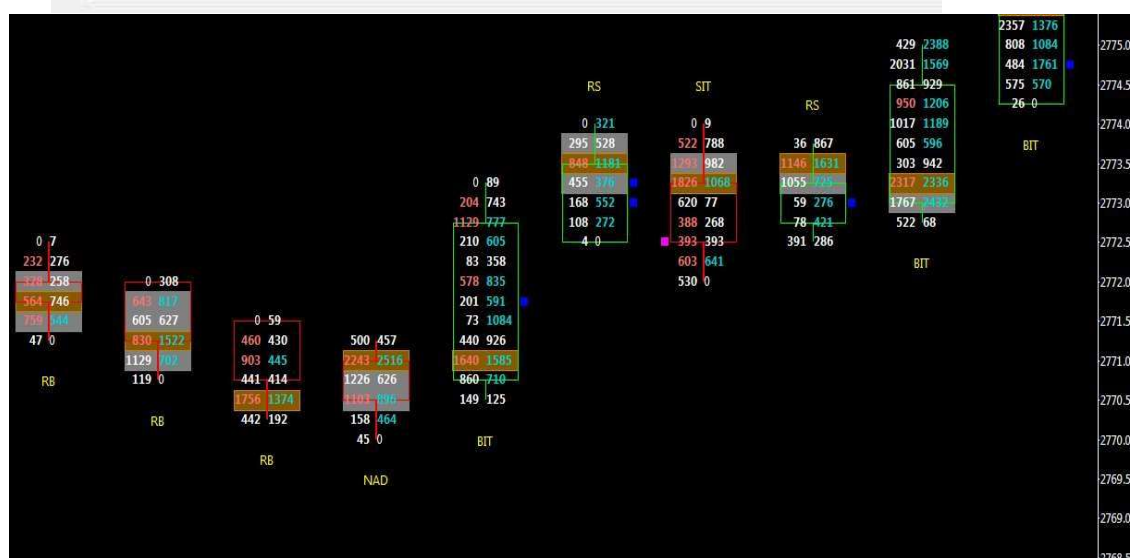
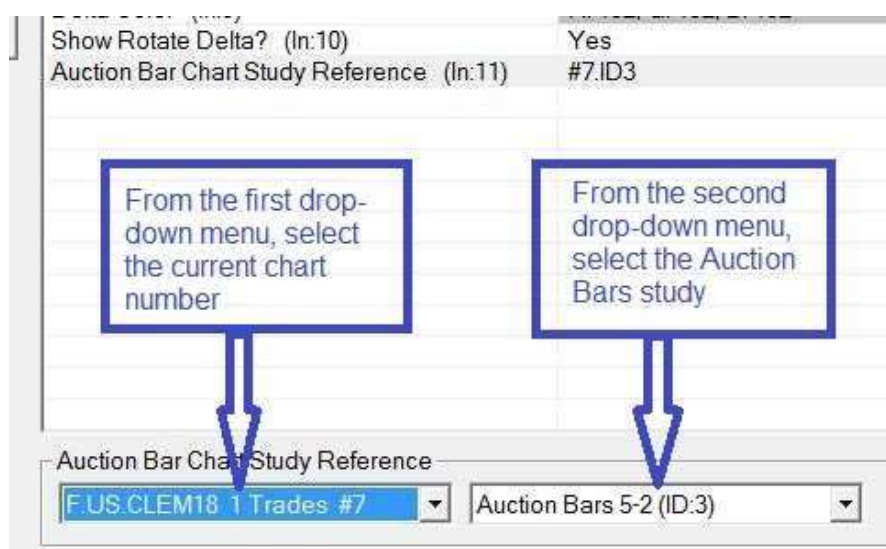


Figure 5 Volume Nodes on the ES

Responsive Buying (RB) was evident as the initial down move began to lose momentum. Then, after a neutral auction bar (NAD), buyers move in and a strong move up resulted from a Buyer Initiated Trade (BIT). As price approached 2774, which was an earlier SR level, Responsive Selling (RS) appeared, followed by a Seller Initiated Trade (SIT) as sellers defended the level and forced price down. However, buyers returned and more Buyer Initiated Trades (BIT) drove price through the SR level.



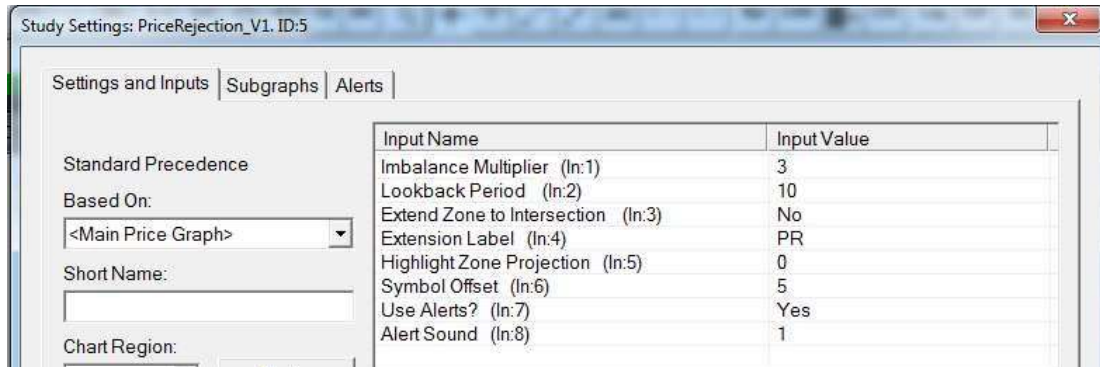
Figure 6 Probe and Rotate Delta on the ZB

An example of Probe Delta and Rotate Delta. The down bar at 19:21:31 had large negative probe delta, suggesting selling strength, but despite more heavy selling on the next bar, a buying imbalance at the bottom edge forced price up and the bar finished with a strong buying delta creating a Buyer Initiated Trade. On the 19:39:06 bar, sellers tried again to retest the bottom edge, but the probe delta finished slightly positive and the rotate delta was strongly positive indicating that buyers were defending the level strongly and price moved up again.

Some aspects to look for in delta and rotate delta: If you see strongly positive delta on a down bar then that indicates substantial buying took place. If the rotation delta was also strongly positive then that confirms that buyers were pushing back against the bar's down move near the low of the bar. The existence of buyers at this level may also be confirmed by seeing a price rejection or buying imbalance. A combination of these signals could indicate an imminent price reversal, but of course you need to view the bar in context, and watch what is happening on intrinsic value, etc. in order to build a complete picture. Spend some time studying charts and look at what happens to price when you see positive delta on a down bar or negative delta on an up bar, especially when other signals are displayed in the same area.

Price Rejection

This indicator watches for a reduction in buyer volume at a bar high combined with a bearish imbalance, indicating that buyers are losing control of the up move and that their attempt to move price higher has been rejected. Similarly, it will signal a reduction in seller volume at a bar low combined with a bullish imbalance, indicating that sellers are losing control of the down move and that the low price has been rejected. Parameters



- **Imbalance multiplier** A bearish imbalance is identified when the ratio of bid volume to ask volume on a diagonal comparison exceeds this value. A bullish imbalance is identified when the ratio of ask volume to bid volume, on a diagonal comparison, exceeds this value. Default value 3.
- **Lookback period.** Price Rejection signals will only be displayed if the current bar's high is higher than, or equal to, the highest high of the preceding x bars, where x is the lookback period, or if the current bar's low is lower than or equal to the lowest low in the lookback period. If the lookback period is set to zero then the Price Rejection signals will be displayed whenever they occur, even if it is not at a top or bottom edge.
- **Extend Zone to Intersection** – if set to Yes, then two horizontal lines representing the top and bottom of the price rejection zone will be extended to the right until an intersection with a subsequent price bar. This allows us to watch for a tap back to a prior reversal zone, where we will often see a bounce off that level. Note that if only one of the two lines intersects with a subsequent bar, the other line will continue to be extended until it too intersects a later bar.
- **Extension Label** – A two-character code can be used to label the extension zone in order to identify that it belongs to the Price Rejection indicator. Default is "PR".
- **Highlight Zone Projection** – Number of bars over which to extend the shaded price rejection zone.
- **Symbol Offset** – Number of ticks above or below the bar at which the Price Rejection symbol is to be displayed. Note that the format of the symbol can be modified by

clicking on the Subgraphs tab for the indicator and selecting a different Draw Style from the drop down menu.

- Use Alerts?

If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.

- Alert Sound

If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.

Example



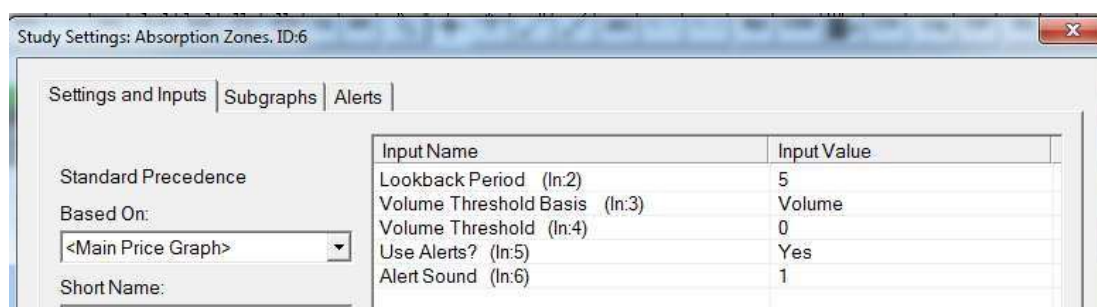
Figure 7 Buying and Selling Price Rejections on the ES

On the ES, Price Rejections caught the reversals of both the up move and the subsequent down move.

Absorption Zone

This indicator looks for signs of absorption at the top of a bar that has the highest high over a given period, or at the low of a bar that has the lowest low over a given period. The absorption signal will appear if maximum delta occurs near the high of the bar, meaning that strong buying has not managed to take price higher. Similarly, an absorption signal will appear if the minimum (most negative) delta occurs near the low of the bar, meaning that strong selling failed to take price lower.

Parameters



- **Lookback Period** – if set to a value greater than 1, absorption signals will not be displayed unless the current bar's high is higher than, or equal to, the highest price over the lookback period, or the current bar's low is lower than, or equal to, the lowest price over the lookback period. Valid range: 1 to 20.
- **Volume Threshold Basis** – this parameter determines whether Bid/ask Volume or Delta is to be used as a filter so that signals are only displayed when the relevant threshold (see below) has been surpassed. If Volume is selected, then for absorption at the bar high, the Ask Volume must exceed the threshold, and for absorption at the bar low, the Bid Volume must exceed the threshold. In the case of Delta, the maximum delta at the bar high must exceed the threshold value, or the minimum delta at the bar low must be lower than the threshold value multiplied by -1.
- **Volume Threshold** – specifies the level of volume or delta (see above) that must be present in order for the Absorption signal to be displayed. The default value is 0, meaning that signals will always be displayed when the other criteria are met.
- **Use Alerts?**
If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.
- **Alert Sound**
If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.



Figure 8 Absorption Zones indicate resistance to the up move.

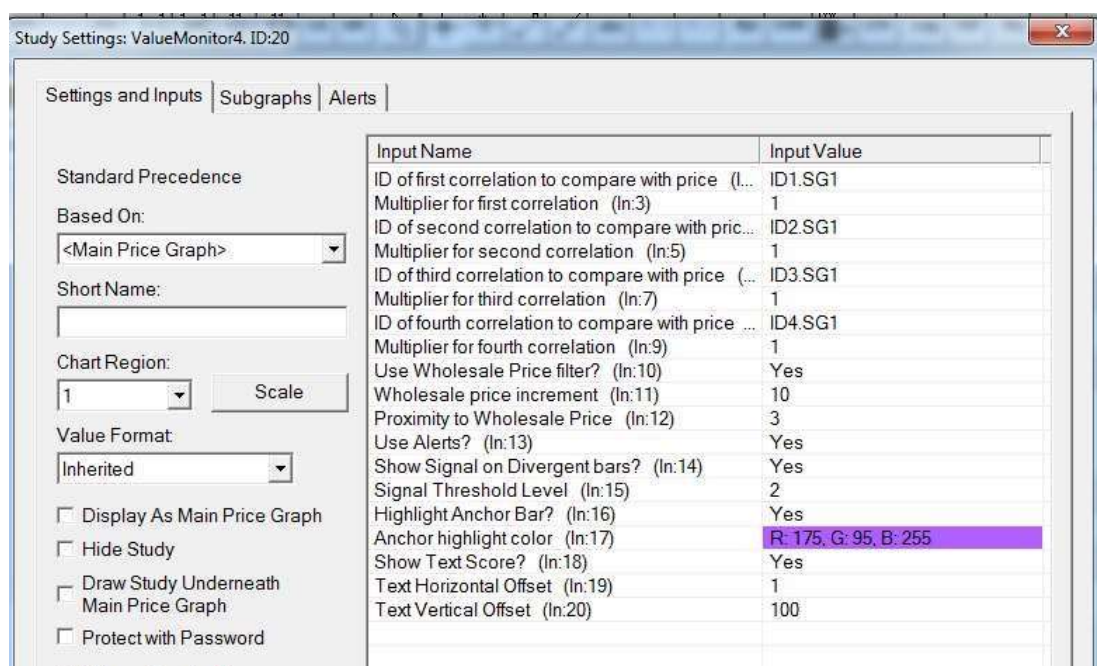
Here, as price moves higher we see absorption zones forming around the 2786 level, giving us a hint that buyers are running into strong resistance. The selling imbalances at the top edge eventually overcome the buying and force price down sharply.

However, bear in mind that the absorption zones represent levels of liquidity to which price will often return in order to re-test the level.

Value Monitor

This indicator monitors, from a selected anchor point, the price movement of the symbol in the main chart against the movement of up to four correlated markets that determine its intrinsic value. If a divergence is detected in their relative movements, e.g. the main chart symbol has moved up from the anchor point, but the correlated markets have moved down, then a divergence signal (in this case a sell-side divergence) will be generated.

Parameters



- ID of first correlation to compare with price – a drop-down menu is available to allow the selection of the correlated market. The correlated market must have already been added to the main chart, either as an overlay or by using the Add Additional Symbol study (see https://www.sierrachart.com/index.php?page=doc/StudiesReference.php&ID=400&Name=Add_Additional_Symbol)

If the correlated market has more than one value that can be used (for example an Overlay Bar study or Additional Symbol study will have an Open, High, Low, Close, etc.) then select the relevant value to be compared.

- Multiplier for first correlation – if we believe that this correlation is more important than others then we can apply a multiplier greater than 1. The multiplier can be a floating point number, e.g. 1.67. Default value is 1.
- The ID and Multiplier for the second, third and fourth correlations are all used in the same way as for the first correlation.

Note: if you want to use fewer than 4 correlated markets, just set the corresponding multipliers for the unused markets to zero.

- Use Wholesale Price filter? - if set to Yes, then divergence signals will only be displayed if price is currently at or close to a wholesale price.
- Wholesale price increment – this parameter is only used if the Wholesale Price filter is set to Yes (see above). The value entered is the increment in ticks for wholesale prices. For example if the increment is set to 25 on a CL chart, then wholesale levels would be at .00, .25, .50 and .75.
- Proximity to Wholesale Price – this parameter is only used if the Wholesale Price filter is set to Yes. If proximity is set to zero, then signals will only appear if price is directly on a

wholesale price. If set to a non-zero value then signals will be displayed if price is not more than that number of ticks away from a wholesale price.

- Use Alerts? – if set to Yes, then a message will be written to the Alerts Log and a sound will play whenever the divergence criteria are met. Note: the alert will only sound once per bar.
- Show Signal on Divergent bars? – set this parameter to Yes if signals are to be displayed when a divergence is detected.
- Signal Threshold Level – the divergence score is calculated based on the number of value lines moving opposite to the main symbol. For example, if three of the four value lines are divergent the score will be 3. This parameter determines the minimum divergence score that should generate a signal.
- Highlight Anchor Bar? – set this parameter to Yes in order to highlight the bar chosen as the anchor bar.
- Anchor highlight color – select the color with which the anchor bar should be highlighted. ☐ Show Text Score? – set this to Yes if the divergence score is to be displayed on the chart.
- Text Horizontal Offset – this parameter determines the horizontal offset of the divergence score text on the chart. The offset value is in the range 1 to 100, where 1 places the text at the left edge of the chart and 100 places the text at the right edge.
- Text Vertical Offset - this parameter determines the vertical offset of the divergence score text on the chart. The offset value is in the range 1 to 100, where 1 places the text at the bottom edge of the chart and 100 places the text at the top edge.

Selecting Anchor Points

To select a bar on the chart as your anchor point, move the cursor to the bar concerned and then right-click. At the bottom of the drop down menu, you will see Select Anchor Point. Click on this option and, if you have selected to highlight the anchor bar, you will see the selected bar displayed in the highlight color you have chosen. If you want to change the anchor point to a different bar, simply position the cursor over the new bar, right-click and Select Anchor Point again. The previous anchor bar will be restored to its original color and the new bar will be highlighted.

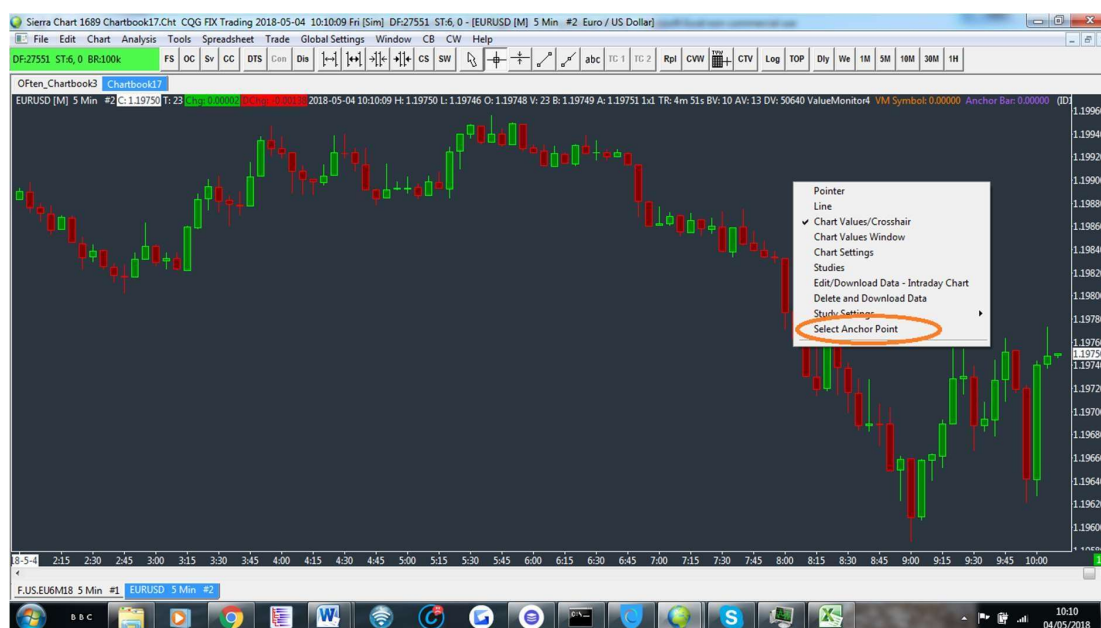


Figure 9 Selecting an Anchor Point for the Value Monitor

Obviously, an important factor in getting reliable signals from the Value Monitor is the correct selection of an anchor point, as that will determine the relative movement of the correlated markets and, in turn, the overall score that determines whether a buy trade or sell trade is indicated.

The best locations for anchor bars are generally at, or around highs and lows on the main chart. Look for moves where the main market and the intrinsics are aligned, i.e. all have moved in the same direction and the main market is forming a top or bottom. Then place the anchor bar on a longish bar close to the swing low or swing high of the main chart.

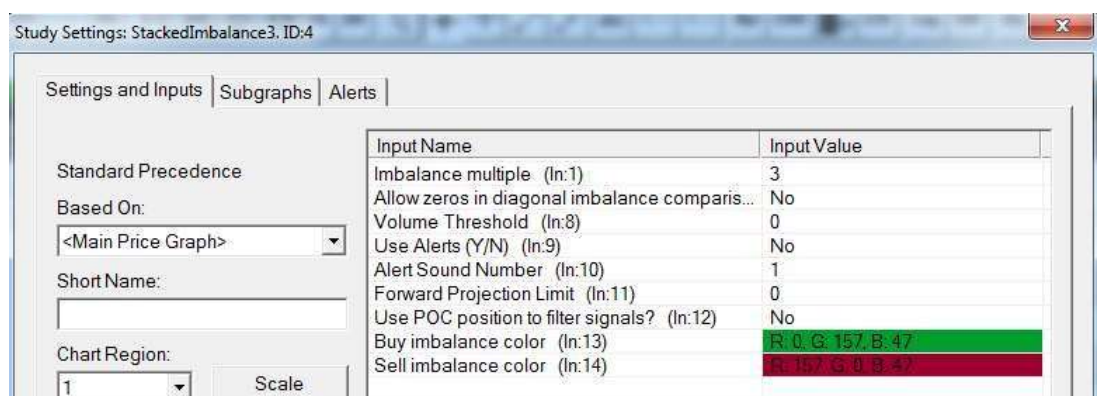
Example



Stacked Imbalances

The occurrence of stacked imbalances on consecutive price levels is a clear indication of aggressive selling or aggressive buying. If large volumes are seen in the imbalance zones then it is likely that institutional trading is taking place, and clearly we don't want to trade against that kind of volume. It's important, therefore, to keep track of the levels at which these imbalances occur because they will often influence price action if the market returns to those levels. When we have several stacked imbalance zones visible on a chart, we often see price trade from one imbalance zone to the next and then rotate back to the previous zone.

Parameters



- **Imbalance multiple** - A bearish imbalance is identified when the ratio of bid volume to ask volume on a diagonal comparison exceeds this value. A bullish imbalance is identified when the ratio of ask volume to bid volume, on a diagonal comparison, exceeds this value. Default value 3.
- **Allow zeros in diagonal imbalance comparison** – if set to Yes, then any diagonal comparison where Bid or Ask volume is zero and the other value is non-zero will be accepted as an imbalance, provided that the non-zero volume also meets the Volume Threshold criterion, if set (see below). If set to No, then zero volumes will be disregarded and will not result in imbalances.
- **Volume Threshold** –if set to zero, then any non-zero volume that satisfies the Imbalance Multiple criterion will be classed as an imbalance, so even very small volumes may qualify. In order to filter out small volumes, the Volume Threshold can be set according to the market concerned and the typical volumes seen during trading hours, and then only volumes that are equal to or greater than the Threshold Volume will be accepted as imbalances.
- **Use Alerts (Y/N)** – set to Yes if alerts are required whenever a stacked imbalance is detected.
- **Alert Sound Number**
If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.
- **Forward Projection Limit** –specify the number of bars for which the imbalance zone should be projected forwards on the chart.
- **Use POC position to filter signals** – if set to Yes then a selling imbalance will only be displayed if the imbalance occurs below the POC of the bar, and a Buying imbalance will only be displayed if the imbalance occurs above the POC. If set to No, then all imbalances will be displayed regardless of their position with regard to the POC.
- **Buy Imbalance Color** – select the color required to mark buying imbalances.
- **Sell Imbalance Color** – select the color required to mark selling imbalances.



Figure 10 Stacked Imbalance zones are often revisited and can provide useful targets for swing trades.

Stacked Imbalance Indicator performance

There are a number of factors that will influence the calculation time and consequently the performance of this indicator:

- 1) The number of days' history on the chart. Whenever you make a change to any parameter of any study on the chart (even just to change the thickness of a line drawn by the study), Sierra will recalculate the whole chart, so the more history on the chart, the longer it will take.
- 2) The size of the bars. The greater the range of the bar (distance from low to high), the more calculations that have to be done to check for stacked imbalances anywhere on the bar. While we can't always control how many ticks up or down will occur on a normal time-based chart, we can limit the size to some extent when we use auction bars, by reducing the size of the directional move (probe) and the reversal (rotation). So, selecting a 4-2 bar instead of an 8-6 bar will reduce the calculation time (although this is somewhat offset by an increase in the number of bars to check).
- 3) The number of imbalances to be projected will also affect the calculation time. There is a routine to check on how many projections are still active, and for each projection, extend the display of the imbalance zone. The more imbalances, the longer the calculation time. We can reduce the number of imbalances plotted on the chart by increasing the value of the Volume Threshold. Imbalances that result from an ask volume of 3 against a bid volume of 1 are probably not meaningful, whereas an imbalance caused by an ask volume of 500 against a bid volume of 100 probably will create a level that will influence future price action. Also, applying the POC filter will tend to reduce the number of imbalances and improve calculation performance.
- 4) The duration of projection will also impact the calculation. Using a large number of bars over which to project the imbalance zone will increase the likelihood of having multiple zones running in parallel, which will increase calculation time. It will also potentially lead to some areas of the chart that consist entirely of overlapping imbalance projections. So how would you interpret them??

Bottom line, to improve performance, keep chart history to a reasonable level, try smaller directional move / reversal values for auction bars, use a volume threshold so that you only get meaningful imbalances, and keep projections to a practical duration. Some or all of these actions should provide adequate performance and display imbalance zones that give effective levels to use in your trading.

Note: similar actions will also benefit the [Volume Nodes](#) indicator.

Market Divergence Indicator

The ability to spot when market price action is diverging from its expected value is an important aspect of any trading strategy, and the Market Divergence indicator will automatically draw divergence lines on the chart to identify when such a condition has been detected.

The indicator will identify bullish and bearish divergence signals by comparing the main market's movement between swing lows (or pivot lows) and swing highs (or pivot highs) against that of a value line, or a selected study, over the same period. When these movements are in opposing directions, that generates a divergence signal.

Bullish Divergence occurs when the main market moves down (identified by the occurrence of lower lows), but the value line moves up (identified by higher lows), suggesting that the main market is starting to look undervalued. This can often precede a reversal of main market price to the up side.

Bearish Divergence occurs when the main market moves up (identified by the occurrence of higher highs), but the value line moves down (identified by lower highs), suggesting that the main market is starting to look overpriced. This can often precede a reversal of main market price to the down side.

The indicator can also optionally display hidden divergence.

Hidden Bullish Divergence often occurs when the main market is in an uptrend and we see it move up (identified by the occurrence of higher lows), but the value line moves down (identified by lower lows). The hidden divergence indicates that the main market's current uptrend is likely to continue.

Hidden Bearish Divergence often occurs when the main market is in a downtrend and we see it move down (identified by the occurrence of lower highs), but the value line moves up (identified by higher highs). The hidden divergence indicates that the main market's current downtrend is likely to continue.

As with all indicators, a signal in one direction does not necessarily mean you have a trade. It's important to see how the signal fits into the overall context in which the market is moving to determine whether the signal acts as confirmation, or it contradicts other signals and therefore suggests caution before entering.

Parameters

Study Settings: Market_Divergence_03, ID:6

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

Short Name:

Chart Region:

Value Format:

☐ Display As Main Price Graph

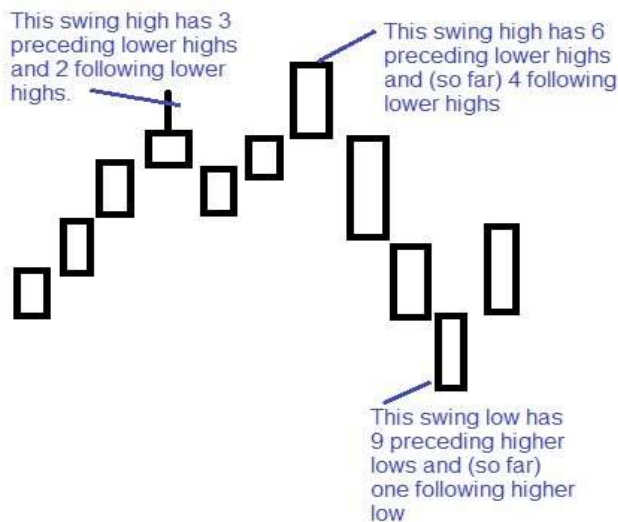
☐ Hide Study

☐ Draw Study Underneath Main Price Graph

Input Name	Input Value
Input Data (In:1)	Close
No. of preceding highs/lows (In:2)	2
No. of following highs/lows (In:3)	1
Length (In:4)	100
No. of swing highs/lows to check for divergen...	4
Min. number of bars between swings (In:6)	5
ID of Study to compare with price (In:7)	ID4.SG1
Use Alerts? (In:8)	Yes
Alert Sound (In:9)	1
Show Historical Divergence? (In:10)	No
Show Standard Divergence? (In:11)	Yes
Bullish Divergence Color (In:12)	R: 255, G: 255, B: 0
Bearish Divergence Color (In:13)	R: 255, G: 255, B: 255
Show Hidden Divergence? (In:14)	Yes
Hidden Bullish Divergence Color (In:15)	R: 0, G: 255, B: 255
Hidden Bearish Divergence Color (In:16)	R: 255, G: 0, B: 255

- Input Data – this parameter is used to select the price data of the main market to be used in the divergence comparison. Normally, this parameter is set to “Last” in order to use the last price or closing price of each bar.
- No. of preceding highs/lows – a swing high will be preceded by a number of lower highs, and a swing low will be preceded by a number of higher lows. The higher the value of this parameter, the more important the swing high/low is likely to be. However, this will result in fewer swing highs/lows being found and therefore fewer divergence signals.
- No. of following highs/lows – a swing high will be followed by a number of lower highs, and a swing low will be followed by a number of higher lows. The higher the value of this parameter, the more important the swing high/low is likely to be. However, this will result in fewer swing highs/lows being found and therefore fewer divergence signals. It will also delay the appearance of the divergence signals, because it has to wait until all of the following bars are present in order to determine if the parameter is satisfied.

See the diagram below for examples of swing highs and lows with the count of preceding highs/lows and following highs/lows.



- Length – this parameter defines how far back (number of bars) the indicator should go in order to find recent swing highs and lows. The number should be selected in line with the volatility of the market and the settings selected above for preceding and following highs/lows, so that a manageable number of swing highs/lows are found.
Note: if you see error messages in the Message Log saying “Bear Array full” or “Bull Array full”, it means that you are trying to use too many swing highs and lows in your analysis. This can usually be corrected by reducing the Length parameter and/or increasing the value for No. of preceding highs/lows.
- No. of swing highs/lows to check for divergence – the indicator can check the most recent swing high/low against a selected number of prior swing highs/lows, determined by this parameter, in order to look for divergence. If this number is low then the divergence check will be limited to the last few swing highs/lows. A higher number will extend the check further back to include swing highs/lows that occurred some time ago.
- Minimum number of bars between swings – swing highs/lows in very close proximity can essentially be viewed as a single price point rather than discrete price levels that may constitute a divergent move. In order to eliminate signals caused by swing highs/lows that are very close together, we can use this parameter to specify the minimum number of bars that must be present between two swings in order to be considered separately.
- ID of Study to Compare with Price – a drop-down menu is available to allow the selection of the study or market to be compared against the main market for divergent moves. The study / market must have already been added to the main chart, either as an overlay or by using the Add Additional Symbol study (see https://www.sierrachart.com//index.php?page=doc/StudiesReference.php&ID=400&Name=Add_Additional_Symbol)

If the study / market has more than one value that can be used (for example an Overlay Bar study or Additional Symbol study will have an Open, High, Low, Close, etc.) then select the relevant value to be compared.

IMPORTANT the Compare study / market must be placed in Chart Region 2 for the divergence lines to draw correctly.

- Use Alerts? – if set to Yes, then an alert will be sounded whenever a divergence is detected on the chart.
- Alert Sound – enter the number of the sound to be played when an alert condition arises.
- Show Historical Divergence? – if set to No, the indicator will display only the most recent occurrence of divergence of each type (Bullish, Bearish, and, if Hidden Divergence is also selected, Hidden Bullish and Hidden Bearish).
If set to Yes, the indicator will display all occurrences of divergence found in the lookback period defined by the Length parameter (see above).
- Show Standard Divergence? – if set to Yes, then the indicator will display occurrences of Standard Bullish and Standard Bearish divergences.
- Bullish Divergence Color – select the color of lines to be used to show standard bullish divergence.
- Bearish Divergence Color – select the color of lines to be used to show standard bearish divergence.
- Show Hidden Divergence? – if set to Yes, then the indicator will display occurrences of Hidden Bullish and Hidden Bearish divergences.
- Hidden Bullish Divergence Color – select the color of lines to be used to show Hidden Bullish divergence.
- Hidden Bearish Divergence Color – select the color of lines to be used to show Hidden Bearish divergence.

Examples

- Plotting CL against the Demand Index often provides some valuable signals from both regular and hidden divergence.



- As part of the Gold Complex strategy (see the video from December 12, 2017), plotting GC against the ZN/ES ratio allows the divergence indicator to pick out some useful signals in both directions. Here we are showing historical divergence (regular divergence only). Note: the full Gold Complex strategy involves more than just divergence, so refer to the video for more details.



Some notes regarding parameter impacts on Market Divergence performance.

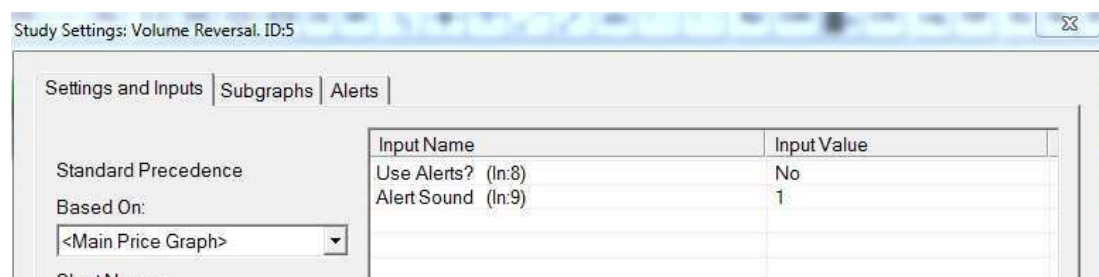
The higher the values of Length and No. of Swing Highs/Lows to check for divergence, the more processing involved with potential performance impact. Also, use of historical divergence will increase compute time, and in any case, does not add value for live trading. It is, however, Order Flow Trading Enhancements for Sierra Chart

interesting to study historical divergence to see which parameter settings and which types of divergence generated the most valuable signals in the past.
The inclusion of Hidden Divergence will also increase CPU load.

Volume Reversal

The Volume Reversal indicator looks for a chart pattern over three bars where we see increasing volume on two bars in one direction (the second bar being smaller than the first) and the third bar in the opposite direction on higher volume. The signal will indicate an imminent move in the direction of the third bar.

Parameters



- Use Alerts?
If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.
- Alert Sound
If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.

Examples



Figure 11 Volume Buy Reversals on EURUSD 5 minute chart



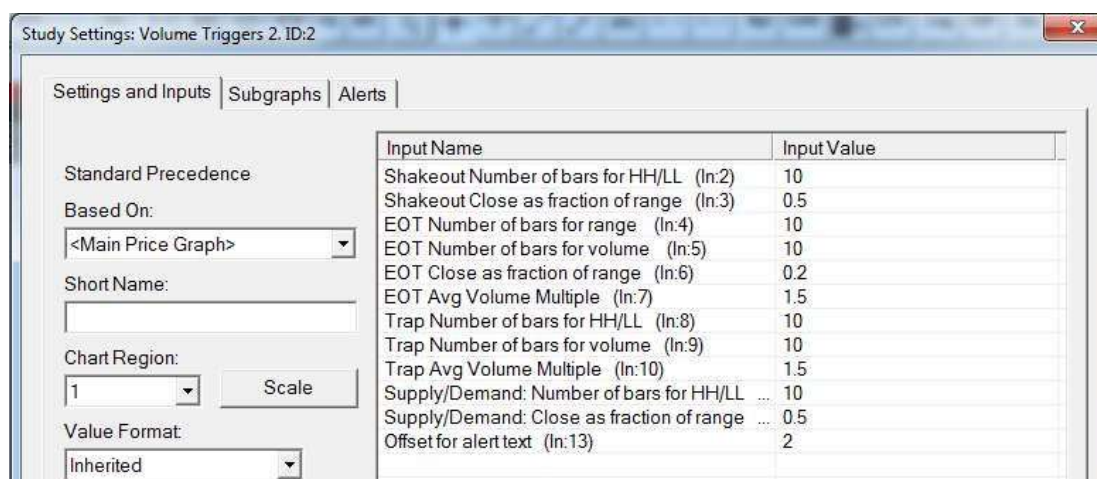
Figure 12 Volume Sell Reversal on CL 5 minute chart

Volume Triggers

The Volume Triggers indicator signals four separate types of price action events that often indicate an imminent price reversal or the end of a trend. The four signals produced by the indicator are:

- Test (indicated by “tst”) – this is a shakeout test where price is marked down into new low territory or marked up into new high territory and then closes more than 50% of the way back. We will often see a bounce off the level.
- Trap (indicated by “trap”) – where price takes out the high of several preceding bars on higher volume but closes near the low, or price takes out the low of several preceding bars on higher volume but closes near the high.
- End of Trend (indicated by “END”) – where a smaller than average bar has high volume but closes well off its high/low.
- Supply or Demand bars (indicated by “hs” or “hd”) – where we see passive selling coming in on larger volume, with a pin at the high followed by low volume absorption, or passive buying on larger volume with a pin at the low followed by low volume absorption.

Parameters



- Shakeout Number of bars for HH/LL – specifies the number of bars for which the current bar represents the highest high or lowest low. We are looking for a price move into new low or high territory, i.e. price moves to a high or low that exceeds that of the past X bars, where X is the value of this parameter.
- Shakeout Close as fraction of range – specifies how far price retraces off the high of an up bar or the low of a down bar at the close. If price retraces halfway down the bar from the high, set the fraction to 0.5; if price retraces three-quarters of the way up the bar from the low, set the fraction to 0.75.
- EOT Number of bars for range – the End of Trend indicator looks for a smaller than average bar. This parameter specifies the number of preceding bars to use when computing the average bar range.
- EOT Number of bars for volume – the End of Trend indicator looks for a bar with higher than average volume. This parameter specifies the number of preceding bars to use when computing the average volume. See also EOT Avg Volume Multiple.
- EOT Close as a fraction of range - specifies how far price retraces off the high of an up bar or the low of a down bar at the close. If price retraces halfway down the bar from the high, set the fraction to 0.5; if price retraces three-quarters of the way up the bar from the low, set the fraction to 0.75.
- EOT Avg Volume Multiple – specifies by how much the volume of the current bar should exceed the average bar volume in order to be classed as “high volume”. For example, if the volume should be at least double the average volume to be classed as “high” then set the parameter to 2. If it should be at least 50% higher, then set the parameter to 1.5.
- Trap Number of Bars for HH/LL - specifies the number of bars for which the current bar represents the highest high or lowest low. We are looking for a price move into new low or high territory, i.e. price moves to a high or low that exceeds that of the past X bars, where X is the value of this parameter.
- Trap Number of bars for volume - the Trap indicator looks for a bar with higher than average volume. This parameter specifies the number of preceding bars to use when computing the average volume. See also Trap Avg Volume Multiple.

- Trap Avg Volume Multiple - specifies by how much the volume of the current bar should exceed the average bar volume in order to be classed as “high volume”. ”. For example, if the volume should be at least double the average volume to be classed as “high” then set the parameter to 2. If it should be at least 50% higher, then set the parameter to 1.5.
- Supply/Demand Number of Bars for HH/LL - specifies the number of bars for which the current bar represents the highest high or lowest low. We are looking for a price move into new low or high territory, i.e. price moves to a high or low that exceeds that of the past X bars, where X is the value of this parameter.
- Supply/Demand Close as fraction of range- specifies how far price retraces off the high of an up bar or the low of a down bar at the close. If price retraces halfway down the bar from the high, set the fraction to 0.5; if price retraces three-quarters of the way up the bar from the low, set the fraction to 0.75.

Examples



Figure 13 A series of shakeouts and a trap on GC

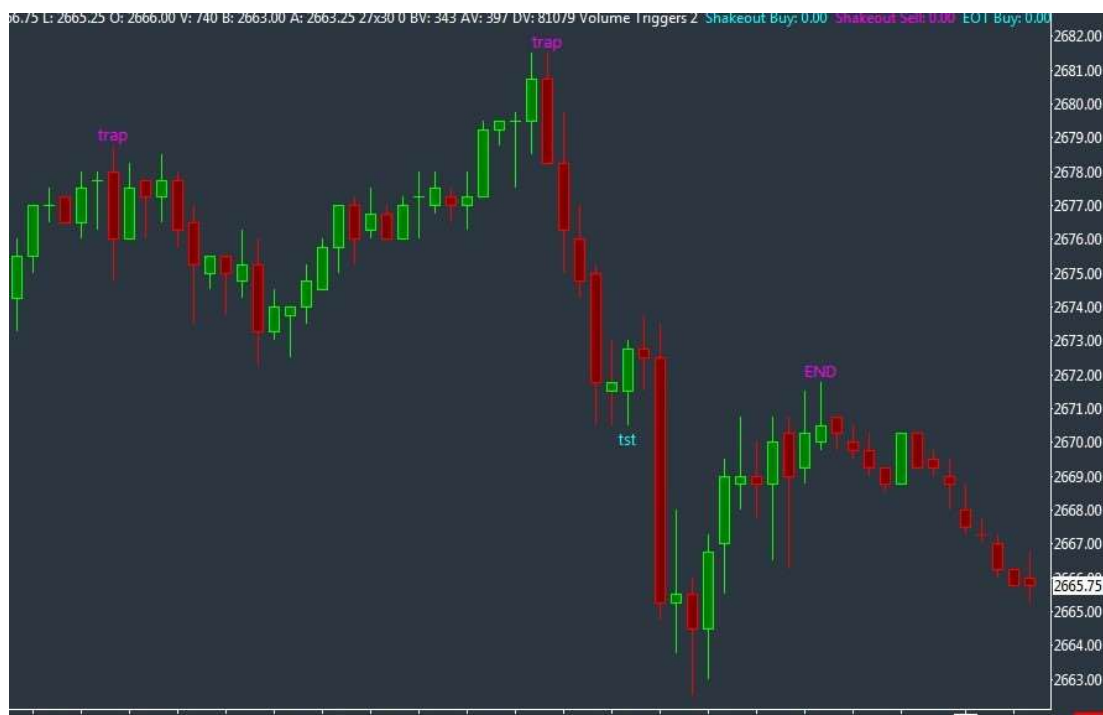
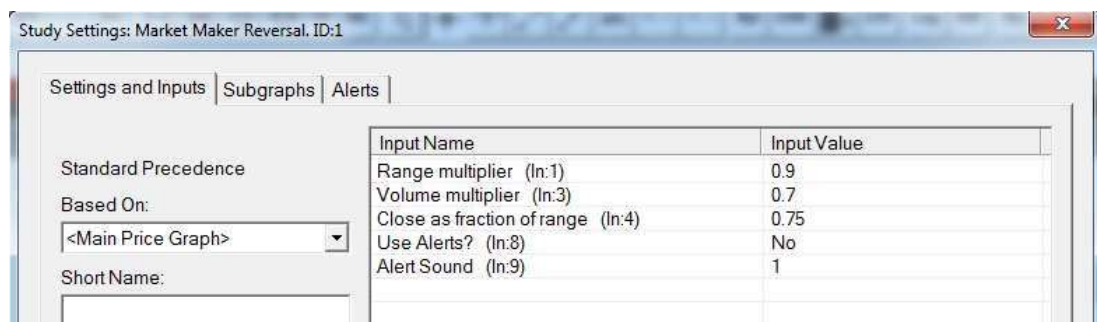


Figure 14 Traps and End of Trend on ES

Market Maker Reversal

The MM Reversal indicator looks for a price action pattern where we have a down bar making a new low on high volume followed by an up bar that closes near the high but on low volume, or an up bar making a new high on high volume followed by a down bar that closes near the low but on low volume

Parameters



- Range multiplier- specifies the ratio of the size of the second bar in the pattern compared to the first. The second bar's range must be greater than or equal to this multiple of the first bar's range.
- Volume multiplier – specified the ratio of the volume of the second bar in the pattern compared to the first. The second bar's volume must be less than or equal to this multiple of the first bar's volume.

- Close as a fraction of range – specifies how far up/down the bar the close should occur. For an up bar, a fraction of 0.9 means it will close 90% of the way from the low, i.e. near the high. For a down bar, a fraction of 0.9 means it will close 90% of the way from the high, i.e. near the low.
- Use Alerts?
If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.
- Alert Sound
If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.

Examples

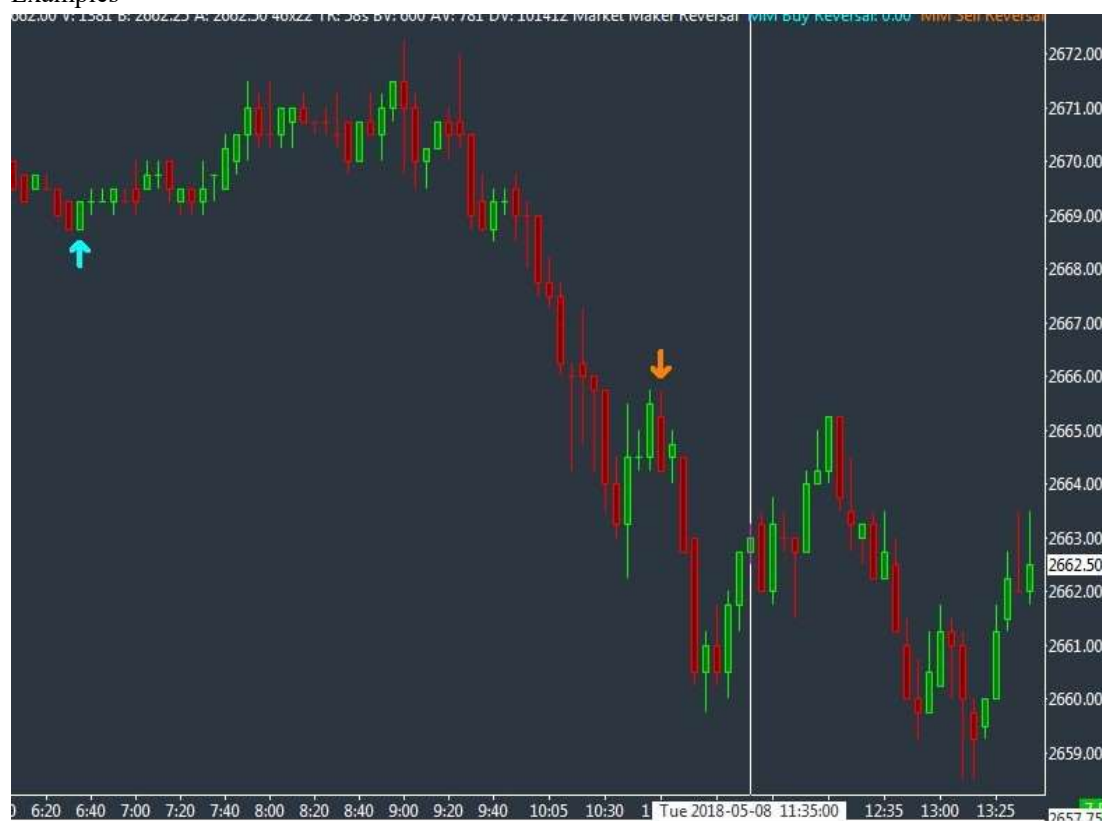


Figure 15 MM Reversals on ES 5 minute chart

Pressure Line

The Pressure Line indicator monitors trading volume at the Bid and the Ask in order to determine shifts in the levels of buying and selling pressure as the market moves through auction cycles. It

highlights areas of buying and selling exhaustion and bullish or bearish divergence that often precede a price reversal.

Parameters

Input Name	Input Value
UseUpTicks (In:1)	Yes
UsePrice (In:2)	No
Divergence Alert (In:7)	No
Div. Alert Sound (In:8)	1
Exhaustion (In:9)	Yes
Exhaustion Alert (In:11)	No
Exh Alert Sound (In:12)	2
Ex Look back (In:13)	60

- **Use Up Ticks**
There are two modes of plotting the Pressure Line: one based primarily on volume and one based primarily on price. For best results, use that based on volume, and set this parameter to Yes and the Use Price parameter to No.
- **Use Price**
See Use Up Ticks parameter above. Normally set this parameter to No.
- **Divergence Alert**
If set to Yes, the indicator will display an alert message when it detects either Bullish or Bearish Divergence.
- **Divergence Alert Sound** –enter the number of the alert sound to be played if a divergence is detected.
- **Exhaustion**
If set to Yes, the indicator will plot Buying and Selling Exhaustion signals on the Momentum Line.
- **Ex Alert**
If set to Yes, the indicator will display an alert message when either Bullish or Bearish Exhaustion is detected.
- **Exh Alert Sound** – enter the number of the alert sound to be played if exhaustion is detected.
- **Ex Lookback**
The exhaustion volume signal is calculated based on volumes over a number of preceding price bars. The higher the value of this parameter, the more historical price bars are included in the calculation. Note that this value will impact how quickly the Momentum Line appears on the chart.

Example



On this ES 5-minute chart, the pale blue dots indicate shifts in buying and selling momentum, indicating buying exhaustion (when plotted above the zero line) or selling exhaustion (when plotted below the zero line). The large red dot is the initial bullish divergence indicating that momentum is starting to swing to the buyers, but a few bars later we see a large white dot indicating initial bearish divergence, as momentum swung back to sellers, and price dropped again. A small red dot indicated secondary bullish divergence as liquidity was taken out at the bottom edge and price then rallied as buyers took over.

Formula

Formula is a simple charting program that plots calculated values based on up to 4 currently open charts. In the parameter settings, you simply specify the number of each chart to be used in the calculation, the multiplier to be applied to that chart's value and the operand to be used with the next chart value in the sequence. Valid operands are:

- “+” to add the values
- “-” to subtract the second chart value from the first chart value
- “*” to multiply the first chart value by the second chart value
- “/” to divide the first chart value by the second chart value

Parameters

Study Settings: Formula. ID:8

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:
 <Main Price Graph>

Short Name:

Chart Region:
 Scale

Value Format:

☐ Display As Main Price Graph

☐ Hide Study

☐ Draw Study Underneath Main Price Graph

Input Name	Input Value
First Chart ID (In:4)	#1.ID1
First chart multiplier (In:5)	1
+ or - or * or / (In:6)	+
Second Chart ID (In:7)	#1.ID1
Second chart multiplier (In:8)	1
+ or - or * or / (In:9)	+
Third Chart ID (In:10)	#0.ID1
Third chart multiplier (In:11)	1
+ or - or * or / (In:12)	+
Fourth Chart ID (In:13)	#0.ID1
Fourth chart multiplier (In:14)	1
+ or - or * or / (In:15)	+
Fifth Chart ID (In:16)	#0.ID1
Fifth chart multiplier (In:17)	1
+ or - or * or / (In:18)	+
Sixth Chart ID (In:19)	#0.ID1
Sixth chart multiplier (In:20)	1

As an example, let's assume that you have opened charts for ZB, ZN, ZF, ZT for the 30-year, 10-year, 5-year and 2-year treasuries, and that you want to plot the following formula:

$ZN * 5 - ZF * 3 - ZB - ZT$

In this example, we are using the following chart numbers:

ZN #6

ZF #7

ZB #5

ZT #8

By the way, the charts to be used in the calculation must be open, but not loaded as overlays on the main chart.

To plot this formula, our parameters would be specified as shown below:

Study Settings: Formula. ID:4

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

Short Name:

Chart Region:

Value Format

Input Name	Input Value
First Chart ID (In:4)	#6.ID1
First chart multiplier (In:5)	5
+ or - or * or / (In:6)	+
Second Chart ID (In:7)	#7.ID1
Second chart multiplier (In:8)	3
+ or - or * or / (In:9)	-
Third Chart ID (In:10)	#5.ID1
Third chart multiplier (In:11)	1
+ or - or * or / (In:12)	-
Fourth Chart ID (In:13)	#8.ID1
Fourth chart multiplier (In:14)	1

You can select the chart region in which to plot the calculated value. Region 1 is the main chart. Region 2 is the region immediately below the main chart.

Important: if you plot the Formula value in the main chart – Region 1 - (or in the same region as another study), you must ensure that the scale on the Formula is set to **Independent**. Normally, this is the default applied by the Formula study. However, if you need to reset it, proceed as follows:

- In the main Settings window click on Scale
- In the Scale Settings window, in the top right corner, check Independent.
- Click OK
- Click OK

Study Settings: Formula. ID: 2

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

Short Name:

Chart Region:

Value Format:

☐ Display As Main Price Graph

☐ Hide Study

☐ Draw Study Underneath Main Price Graph

☐ Protect with Password

DLLName.FunctionName

Scale Settings

Scale Range

☐ Automatic

☒ Independent

☐ Same As Region

☐ Constant Range

Range:

Constant Range Scale Mode:

Ticks From Center:

☒ Re-Center On Chart Scroll

☐ User Defined

Top Of Range:

Bottom Of Range:

☐ Automatic Zero-Based

Scale Type

☒ Linear

☐ Logarithmic

X & Y Constant Relationship

☐ Use Constant Relationship

Bars X Values Range

Scale Increment
 (0=Auto)

Horizontal Grid Line Increment
 (0=Auto)

☐ Reduce Interactive Scale Range Padding on New High/Low

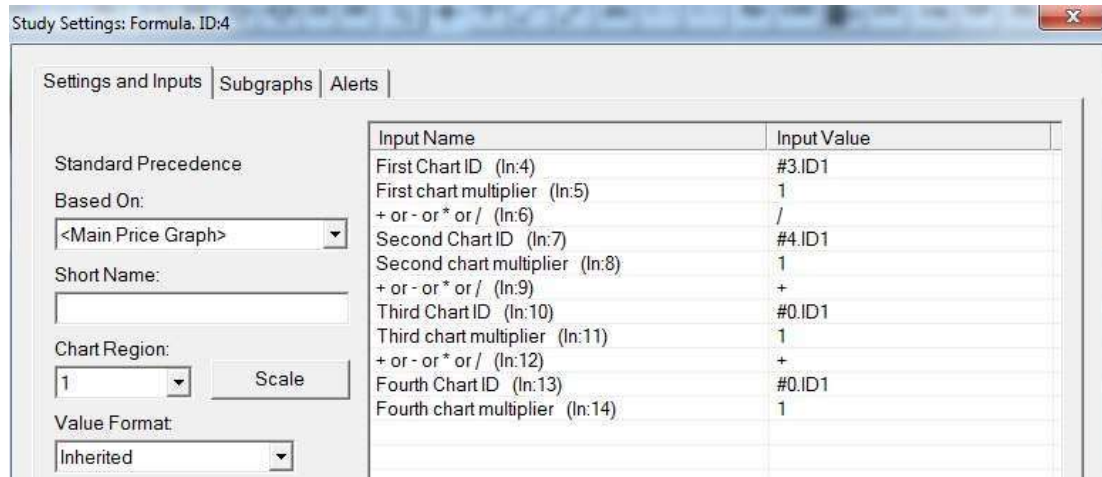
As a second example, , let's plot the ratio GC / ES.

Our chart numbers for this example are:

GC #3

ES #4

The parameters are set as shown below.



Note that the third, fourth, fifth and sixth chart IDs are left at zero, as they are not used in the calculation.

Always remember that the operands are applied in the strict sequence in which they appear. So, if for example we enter chart 1 + chart2 * chart 3 / chart 4, and let's assume that the values of each chart are as follows:

Chart 1 20

Chart2 1.5

Chart3 8

Chart 4 10

The value will be calculated as follows

Chart 1 + Chart 2 = 20 + 1.5 = 21.5

*Chart3 = 21.5 * 8 = 172

/ Chart 4 = 172/10 = 17.2

Voltic

The Voltic indicator monitors the tick velocity over a selected period and highlights when the velocity increases significantly compared to the preceding period. This increase in trade speed often indicates the presence of institutional activity. It's important to watch for Voltic indications around key price levels on the chart, particularly when we see a cluster of Voltic signals appear together. For each case where accelerated trading is identified, the indicator displays the ratio of trade volume at the ask compared to trade volume at the bid. If the volume at the ask is greater, then the ratio of Ask Volume/Bid Volume will be shown as a positive value in the ask dominant color. If the bid volume is greater, the ratio Bid Volume/Ask Volume will be displayed as a negative value in the bid dominant color.

Note – the Voltic indicator will automatically open a tick chart, which is used to perform the calculation of tick speed over a certain period. This tick chart will be automatically closed when the Voltic indicator is removed from the main chart.

Parameters

Input Name	Input Value
Number of Ticks (In:1)	1
Number of seconds (In:2)	30
Threshold percentage (In:3)	100
Number of bars for Threshold check (In:4)	10
Use alerts (Y/N)? (In:5)	Yes
Alert sound for Threshold 1 (In:6)	1
Alert sound for Threshold 2 (In:7)	2
Alert sound for Threshold 3 (In:8)	3
Show Velocity data? (In:18)	Yes
Text Horizontal Offset (In:19)	1
Text Vertical Offset (In:20)	100
Bid Dominant Color (In:21)	R: 255, G: 0, B: 255
Ask Dominant Color (In:22)	R: 255, G: 255, B: 0

- **Number of Ticks.** The Voltic indicator calculates tick velocity by accessing a tick chart (opened automatically by the indicator) and checking how many ticks are recorded within a given time period. This parameter identifies the period of tick chart to be used in the calculation. A value of 20 means that a 20 tick chart will be used.
The lower the number, the more precise the calculation of tick velocity will be, but lower values also mean that the tick chart will take longer to load, so try to achieve a reasonable balance. Default value:20.
- **Number of seconds** – This is the period over which the indicator counts the number of ticks arriving in order to calculate the velocity. Default value : 30.
- **Threshold percentage** – This is the percentage by which the current tick velocity must exceed the average tick velocity in order to qualify as a significant increase. A value of 100 means that the current velocity must be at least 100% greater than the average, i.e. at least double the average value.

Note: There are three threshold levels displayed by the indicator. Level 1 relates to the base Threshold Percentage defined in this parameter. Level 2 is three times the base threshold and Level 3 is five times the base threshold.

- Number of bars for threshold check – This parameter determines over how many preceding bars on the main chart, the average tick velocity is calculated in order to form the basis for the threshold check.

Note: In the time that it takes a given chart bar to form, the tick velocity will vary, but the indicator takes the maximum velocity achieved during the bar's formation as the value for that bar, and does the same for each bar in the check period. So, if the number of bars is set to 10, it will take the maximum tick velocity in each of those 10 bars in order to calculate the average velocity for the check period. Likewise, it will use the maximum tick velocity of the current bar to compare with that average velocity in order to determine whether the threshold has been breached.

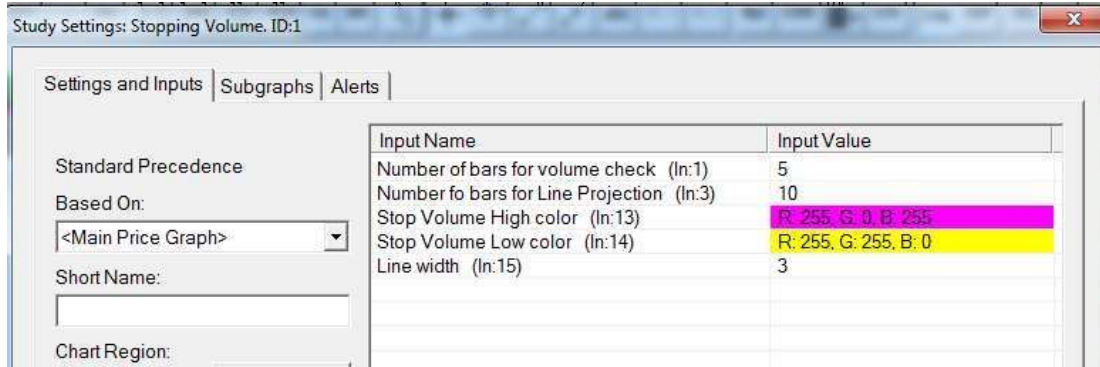
- Use alerts (Y/N)? – Set to Y if an alert is to be displayed in the Alerts Log whenever the velocity threshold is breached.
- Alert Sound for Threshold 1/2/3 – if alerts are being used, a different alert sound can be assigned to a breach of each threshold level.
- Show Velocity Data? If set to Y, the indicator will display the three values: the current tick velocity, the maximum tick velocity achieved on this bar and the average tick velocity in the preceding number of bars as specified in the Number of bars for threshold check parameter.
- Text Horizontal Offset – this parameter is used only if Show Velocity Data is set to Y. The offset value is in the range 1 to 100, where 1 is the left margin of the chart window and 100 is the right margin of the chart window. A value of 50 would place the text in the middle of the chart window.
- Text Vertical Offset - this parameter is used only if Show Velocity Data is set to Y. The offset value is in the range 1 to 100, where 1 is the bottom margin of the chart window and 100 is the top margin of the chart window. A value of 50 would place the text in the middle of the chart window.
- Bid Color – when the indicator displays the ratio of bid volume to ask volume during the period of accelerated trading, this color will be used when the bid volume is greater than the ask volume. The value is also displayed as a negative number.
- Ask Color - when the indicator displays the ratio of bid volume to ask volume during the period of accelerated trading, this color will be used when the ask volume is greater than the bid volume. The value is displayed as a positive number.



Stopping Volume

As its name suggests, the Stopping Volume indicator highlights where increased volume arrives to stop the current price movement.

Parameters



- Number of bars for volume check – part of the pattern to identify stopping volume is a heavy volume bar at a high or low. The volume in the bar concerned is compared with the number of preceding bars specified in this parameter in order to determine if volume is significantly higher.
- Number of bars for Line Projection – When a Stopping Volume pattern is identified, the indicator will draw a horizontal line at the high or low and will extend that line for the number of bars specified in this parameter.
- Stop Volume High color – Stopping Volume signals found at the high are displayed in this color.
- Stop Volume Low color – Stopping Volume signals found at the low are displayed in this color.
- Line width – the projected signal line width can be adjusted using this parameter.

Examples

Often the Stopping Volume will indicate an impending bounce or reversal. In the example below, the stopping volume preceded a bounce in Gold futures just before the London open.



And in the following example, the stopping volume at the high preceded a down move.

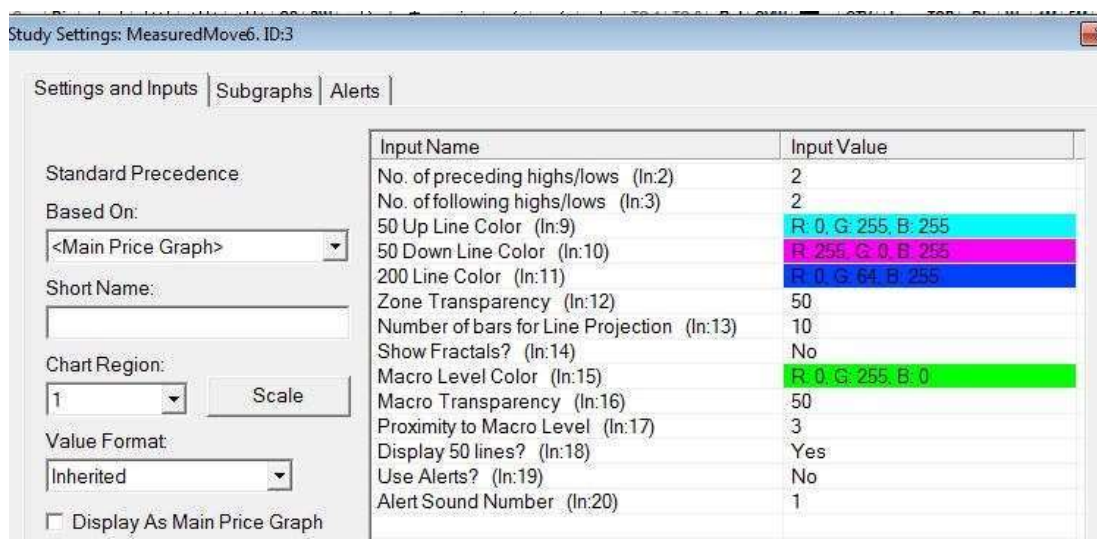


Of course, the appearance of stopping volume does not mean that you can automatically fade the current price movement. However, if you are already in a trade that is in the direction of the current price movement and then you see a stopping volume signal, it would be wise to take profit, or at least reduce your current position size.

Measured Move

This indicator monitors price pivot highs and lows and uses key pivots to identify minor and major institutional price levels. These levels can be used to identify potential targets in measured price moves and will often serve as important support/resistance levels.

Parameters



- No. of preceding highs/lows – in order to identify a fractal high or low, we define how many lower highs must precede and follow the fractal high and how many higher lows must precede and follow the fractal low. This parameter and the next define those values.
- No. of following highs/lows – in order to identify a fractal high or low, we define how many lower highs must precede and follow the fractal high and how many higher lows must precede and follow the fractal low. This parameter and the previous one define those values.
- 50 UP Line Color / 50 DOWN Line Color – select the colors required for the rolling 50 lines.
- Minor Level Color – select the color required for the minor institutional zones.
- Zone Transparency – select the level of transparency for the minor institutional zones. Lower values mean that the zone will be less transparent, I.e. it will be displayed with a more intense color. A value of 100 means that the zone will be fully transparent and therefore not visible.
- Number of bars for line projection – this parameter determines over how many bars the minor zone will be projected. Note that if a new minor zone is identified before this number of bars has been completed for the current zone, then the current zone will be terminated early.
- Show fractals? – if set to “Yes”, fractals will be indicated by up and down triangles. ☐
- Macro Level Color – select the color required for the macro institutional levels.
- Macro Transparency - select the level of transparency for the macro institutional zones. Lower values mean that the zone will be less transparent, I.e. it will be displayed with a more intense color. A value of 100 means that the zone will be fully transparent and therefore not visible.
- Proximity to Macro Level – Macro levels will continue across the chart until they intersect with price. To avoid continuing to display zones where price has bounced just one or two ticks away from the zone, we can set this parameter to determine how close price has to come to the zone in order to be classed as an intersection. For example, if we set the parameter to 3, then if price comes within three ticks of the zone, the zone display will

terminate at that point. If we set the parameter to 0, then price must actually touch the zone before the zone display is terminated.

- Display 50 lines? – Set to “Yes” to display the 50 lines. Set to “no” to suppress the display.
- Use Alerts? – if set to “Yes”, the indicator will issue an alert when a new macro level is established.
- Alert Sound Number – This parameter is used only if Use Alerts is set to “Yes”. It defines the alert sound to be played when an alert condition is identified.

Example



In the example above, we see that two macro institutional levels (shown in green) effectively bracketed the CL market during several hours. Once price starts to move back above the rolling 50 line, a move away from the bottom edge becomes more likely.

Full VZscore

The Full VZscore indicator is a modified version of the standard Zscore indicator which measures distance of market price from its mean value. The main difference in the VZscore indicator is the use of a Volume Zscore in addition to a Price Zscore. The use of the Volume Zscore helps to see how strong the Price Zscore move is.

The histogram is the Volume Zscore and the line is the Price Zscore. The distance from the mean is measured in terms of standard deviations. Any value above 2 is considered an extreme high and a value below -2 is considered an extreme low. A probable reversal of price occurs when a high Volume Zscore coincides with a high/low Price Zscore. A low VolumeZscore coinciding with a high/low Price Zscore indicates a probable end of trend.

Parameters

Study Settings: Full_VZScore. ID:1

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

<Main Price Graph>

Short Name:

Input Name	Input Value
Moving Average period (In:4)	20
Smoothing (In:5)	3
Use Alerts (Y/N)? (In:6)	No
End of Trend Alert Sound (In:7)	1
Reversal Alert Sound (In:8)	2

- Moving Average period – this parameter controls the number of bars over which the moving average of the Zscore is calculated. The smaller the value, the closer the average is to recent data, but the overall trend becomes less clear.
- Smoothing – this parameter controls the level of smoothing applied to the moving average. A higher value of smoothing will eliminate more extreme values and make the curve flatter. However, too high a level of smoothing will tend to reduce the overall distance of the curve from its mean and therefore diminish the indicator's value in identifying when reversals or end of trend conditions are likely.
- Use Alerts (Y/N)? – set the parameter to yes if you wish to display alert messages accompanied by an alert sound whenever an end of trend or reversal condition is identified.
- End of Trend Alert Sound – select the number of the alert sound to be played when an end of trend condition is identified.
- Reversal Alert Sound – select the number of the alert sound to be played when a reversal condition is identified.

Example



Time Segmented Volume (TSV)

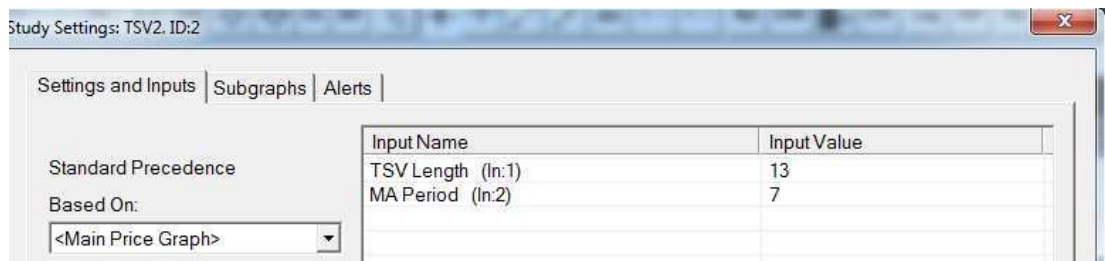
This indicator segments a market's price and volume according to time intervals. The price and volume data are then compared to identify periods of accumulation (buying) and distribution (selling). TSV oscillates around the zero line. When the indicator line is above the zero line, the institutions are buying. When it trends down, and begins oscillating below the zero line, this is distribution.

Often, before a price reversal, we see divergence between price and the TSV. Bullish divergence at a bottom edge indicates that the institutions are accumulating at the low price, ready for the move up. Bearish divergence at a top edge shows that the institutions are selling, while smaller traders are still buying as price moves up.

Note: the Market Divergence indicator included in the OFTEN suite can be used to plot divergences between price and TSV automatically and sound alerts when they occur.

A sharp “V” formation at a bottom edge is a sign that a bottom has been put in, as the institutions initiate substantial buying to push price up rapidly.

Parameters



- TSV Length – the number of bars over which the TSV is calculated. A lower value makes the TSV more sensitive to recent volume changes, but results in more “noise” on the graph. Default value: 13
- MA Period – number of bars over which the moving average is applied.

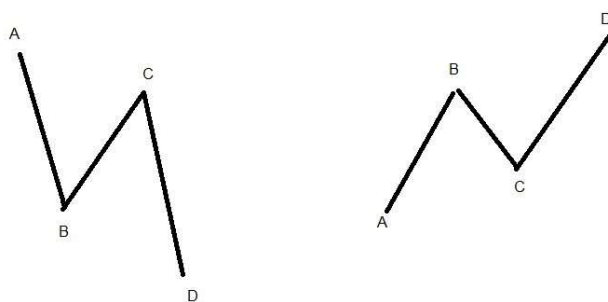
Examples





ABCD

This indicator is based on the method that was used by floor traders to identify target price levels. An ABCD move is formed by three price moves up and down as shown below.



The indicator uses the sizes of the AB and BC legs of the move to identify a zone in which the CD leg should terminate in order to satisfy the calculation criteria. The calculation is based on certain predefined ratios and uses two values:

$ABC = \text{length of BC} / \text{length of AB}$

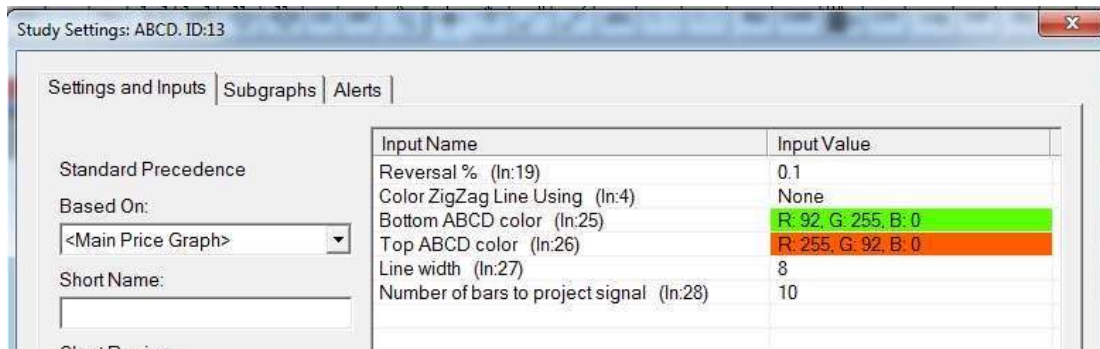
$BCD = \text{length of CD} / \text{length of BC}$

The signal will appear if ABC is between 0.382 and 0.886 and BCD is between 1.13 and 2.618.

Note: the indicator will draw a signal line as soon as D reaches a valid level for the calculation. However, if the CD leg continues to extend beyond that point, it may reach a level where the calculation is no longer valid and the signal line will disappear. The signal line is only confirmed when the next leg in the direction opposite to that of the CD leg reaches the Reversal % defined in the parameters.

Confirmed signals often serve as important support / resistance levels.

Parameters



- **Reversal %** - this parameter controls how much of a pullback is necessary to create a new leg in a move -- in other words, how frequently the zigzag line joining highs and lows moves back and forth. With a higher value in the Reversal %, the moves will be longer and the signals less frequent. Default value : 0.1
- **Color ZigZag Line Using** : if set to Slope the zigzag line will be plotted with different colors for up moves and down moves. If set to None, then the zigzag line will be drawn in the default primary color.
- **Bottom ABCD Color** : select the color required for signals that appear at the end of a down move.
- **Top ABCD Color** : select the color required for signals that appear at the end of an up move.
- **Line width** : select the required width of the signal line
- **Number of bars to project signal** : the indicator will draw a signal line across the specified number of bars following the bar on which the signal is detected. Example



In the above example we see an ABCD floor trader level (green line) at the bottom edge which also coincides with a macro institution level (the darker green zone) and a shakeout bar (tst), and price bounces off that level. Several bars later, we see an ABCD level at the top edge. Although not visible on this screenshot, there was also Stopping Volume at the same top edge price.

BSG (“Before She Goes”)

The BSG indicator helps to identify price action which often precedes a squeeze at a support/resistance level, where price continues through the level rather than reversing there, and so squeezes those traders who were fading the level. Traders who are in a trade in the direction of the current price move, can therefore maintain at least part of their position, or even consider adding to it (assuming that intrinsic value is in agreement). In any case, traders are advised against fading a level when the BSG signal is present.

There are two versions BSG3 and BSG4. They work in the same way, except that BSG3 only signals on the close of the bar whereas BSG4 signals as soon as the setup appears (but may disappear later if the criteria are no longer satisfied).

Parameters

Study Settings: BSG3, ID:2

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:
 <Main Price Graph>

Short Name:

Chart Region:
 Scale

Value Format:

☐ Display As Main Price Graph
☐ Hide Study
☒ Draw Study Underneath Main Price Graph
☐ Protect with Password
 DLLName.FunctionName

☒ Include in Study Summary
☒ Include in Spreadsheet

Input Name	Input Value
No. of preceding highs/lows (In:2)	2
No. of following highs/lows (In:3)	2
Weakness Threshold (In:6)	-0.33
Strength Threshold (In:7)	0.33
Bid Setting 3 (In:8)	Any
Bid Setting 2 (In:9)	Strong
Bid Setting 1 (In:10)	Positive to Strong
Ask Setting 3 (In:11)	Negative to Weak
Ask Setting 2 (In:12)	Negative to Weak
Ask Setting 1 (In:13)	Less than Strong
Bid Setting 3 (In:16)	Less than Strong
Bid Setting 2 (In:17)	Negative to Weak
Bid Setting 1 (In:18)	Weak
Ask Setting 3 (In:19)	Greater than Weak
Ask Setting 2 (In:20)	Strong
Ask Setting 1 (In:21)	Any
Show Fractals? (In:23)	No
Use Alerts? (In:26)	No
Alert Sound (In:27)	1
ID of value line (In:51)	ID1.SG1
Use Absorption? (In:52)	No

ID of value line
 Pressure Line (ID:1) Pressure Line (SG1)

- No. of preceding highs/lows - in order to identify a fractal high or low, we define how many lower highs must precede and follow the fractal high and how many higher lows must precede and follow the fractal low. This parameter and the next define those values.
- No. of following highs/lows – in order to identify a fractal high or low, we define how many lower highs must precede and follow the fractal high and how many higher lows must precede and follow the fractal low. This parameter and the previous one define those values.
Note: The value assigned to the number of following highs/lows has special significance because it determines how quickly the BSG signal and alert will appear. If the value is set to 2, then two completed bars must follow the swing high/low before the signal can be confirmed. Minimum value is 1.
- Weakness Threshold /Strength Threshold – these parameters should use the same values as in Buyer and Seller Exhaustion .
- Bid Setting 3/2/1 and Ask Setting 3/2/1- There are two sets of Bid and Ask settings. The first set should use the same values as Buyer Exhaustion. The second set should use the same values as Seller Exhaustion.
- Show Fractals? - Set to “Yes” to display fractals on the chart.
- Use Alerts? – “Set to “Yes” to sound an alert when a BSG setup is identified.
- Alert Sound – if alerts are being used, set this parameter to select the alert sound to be used.
- ID of value line – the BSG signals will only appear if, in addition to the base criteria, the move is supported by the current direction of the value line. You can use the Pressure Line study or some other calculated study or symbol as the value line.

The Pressure Line, or other selected value line, needs to be present as an overlay on your chart, but can be hidden if required. Enter the ID of the value line as shown in the list of studies (press F6 to display the list of all studies on the chart with their corresponding IDs).

Parameters (continued)

ID of value line (In:51)	101.551
Use Absorption? (In:52)	No
Lookback Period (In:53)	5
Volume Threshold Basis (In:54)	Volume
Volume Threshold (In:55)	0

- Use Absorption? – enter “Yes” if absorption is required to confirm the BSG signal. The absorption should be present at the bottom of the signal candle in the case of a bearish signal, and at the top of the signal candle in the case of a bullish signal.
- Lookback Period – if absorption is being used, if set to a value greater than 1, absorption signals will not be valid unless the current bar’s high is higher than, or equal to, the highest price over the lookback period, or the current bar’s low is lower than, or equal to, the lowest price over the lookback period. Valid range: 1 to 20.
- Volume Threshold Basis – this parameter determines whether Bid/ask Volume or Delta is to be used as a filter so that absorption signals are only valid when the relevant threshold (see below) has been surpassed. If Volume is selected, then for absorption at the bar high, the Ask Volume must exceed the threshold, and for absorption at the bar low, the Bid Volume must exceed the threshold. In the case of Delta, the maximum delta at the bar high must exceed the threshold value, or the minimum delta at the bar low must be lower than the threshold value multiplied by -1.
- Volume Threshold – specifies the level of volume or delta (see above) that must be present in order for the Absorption signal to be triggered. The default value is 0, meaning that absorption signals will always be valid when the other criteria are met.

Example



For additional examples of the BSG indicator in action, see the following video in the Members Area:

12-18-18 Tuesday Snippet – Chasing Liquidity

Failed Auctions / Level 2 Buying and Selling

The Failed Auction indicator identifies failed buy and sell auctions, which can often lead to worthwhile trade setups.

A failed buy auction occurs when price fails to reach the high of the preceding up move and starts to move down again. This is a sign that buyers are weakening and, if other indicators and value are in agreement, can provide a good setup for entering a short trade, such as a squeeze trade at the bottom edge. Failed buy auctions are marked by the text “FBA”.

A failed sell auction occurs when price fails to reach the low of the preceding down move and starts to move up again. This is a sign that sellers are weakening and, if other indicators and value are in agreement, can provide a good setup for entering a long trade, such as a squeeze trade at the top edge. Failed sell auctions are marked by the text “FSA”.

The indicator also marks Level 2 Buyers and Sellers. A level 2 Buy is one where price moves below the previous swing low and then moves back into value with evidence of strong buying activity. A Level 2 Buy is marked on the chart with the text “L2B”.

A level 2 Sell is one where price moves above the previous swing high and then moves back into value with evidence of strong selling activity. A Level 2 Sell is marked on the chart with the text “L2S”.

Parameters

Input Name	Input Value
No. of preceding highs/lows (In:2)	2
No. of following highs/lows (In:3)	1
Offset for text (in ticks) (In:4)	2
Use Alerts for Failed Auctions? (In:5)	No
Failed Auction Alert Sound (In:6)	1
Use Alerts for Level 2 Buying/selling? (In:7)	No
Level 2 Alert Sound (In:8)	2

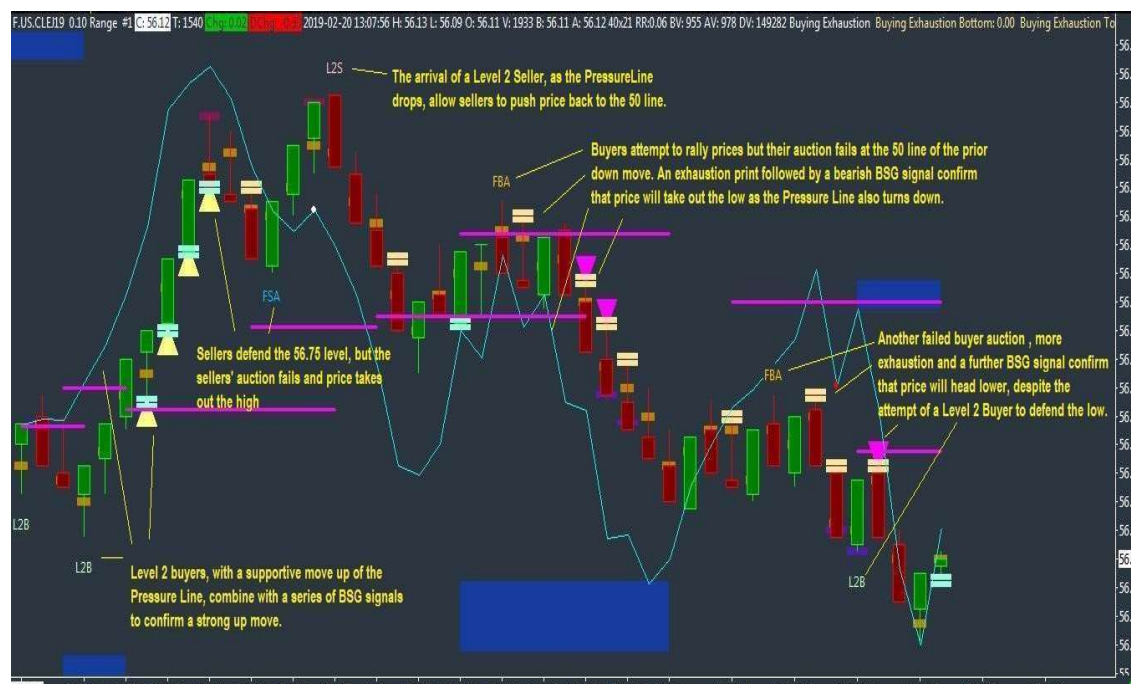
- No. of preceding highs/lows - in order to identify a fractal high or low, we define how many lower highs must precede and follow the fractal high and how many higher lows must precede and follow the fractal low. This parameter and the next define those values.
- No. of following highs/lows – in order to identify a fractal high or low, we define how many lower highs must precede and follow the fractal high and how many higher lows must precede and follow the fractal low. This parameter and the previous one define those values.
Note: The value assigned to the number of following highs/lows has special significance because it determines how quickly the Failed Auction or Level 2 signal and alert will appear.

If the value is set to 2, then two completed bars must follow the swing high/low before the signal can be confirmed. Minimum value is 1.

- Offset for text – set this parameter to the number of ticks at which the Failed Auction text will be displayed above the high or below the low at which the failure is detected. In the case of a Level2 Buyer or Seller signal, the text will be offset by twice this value.
- Use Alerts for Failed Auctions? – set to “Yes” to sound an alert and write an alert message to the Alert Manager Log each time a failed auction is detected.
- Failed Auction Alert Sound – set this parameter to the number of the sound to be played for each Failed Auction alert.
- Use Alerts for Level2 Buying/Selling? – set to “Yes” to sound an alert and write an alert message to the Alert Manager Log each time a Level2 Buyer or Seller is detected.
- Level 2 Alert Sound – set this parameter to the number of the sound to be played for each Level 2 Buyer or Seller alert.

Example

In the screenshot below, we can see how the Failed Auction/L2 indicator combines with the BSG indicator to give a very clear view of imminent price moves.

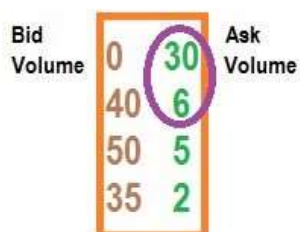


For additional examples of the Failed Auction / L2 indicator in action, see the following video in the Members' Area: 121318 - Order Flow Trapped Traders Stacked Imbalances.

Book Ratio

The Book ratio is based upon a concept that was employed by pit traders in order to identify key support and resistance levels. The ratio is calculated as follows:

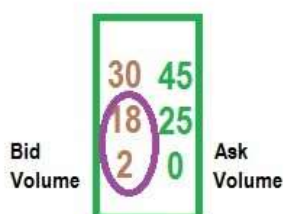
- on a **down** candle, divide the ask volume (i.e. the buying volume) at the price one tick below the high of the bar by the ask volume at the high of the bar.



Book Ratio is calculated by dividing the ask volume at one tick below the high (6) by the ask volume at the high (30), giving a ratio of 0.2.

A Book Ratio less than 1, as in this example, identifies Stopping Volume.
A Book Ratio greater than 1 identifies Exhaustion.

- on an **up** candle, divide the bid volume (i.e. the selling volume) at the price one tick above the low of the bar by the bid volume at the low of the bar.

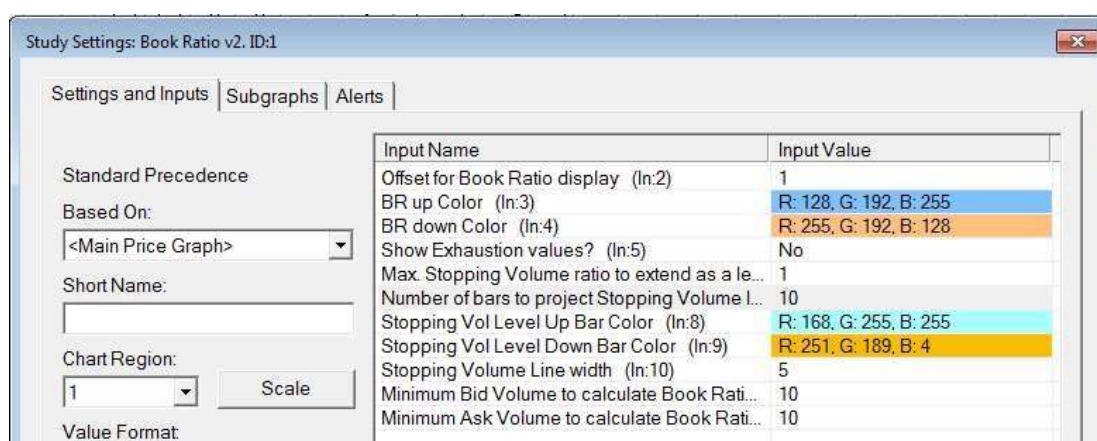


Book Ratio is calculated by dividing the bid volume at one tick above the low (18) by the bid volume at the low (2), giving a ratio of 9.

A Book Ratio less than 1 identifies Stopping Volume.
A Book Ratio greater than 1, as in this example, identifies Exhaustion.

We are particularly interested in the prices at which we see Stopping Volume because these prices can represent key support or resistance levels. The indicator can project these levels forward on the chart if required.

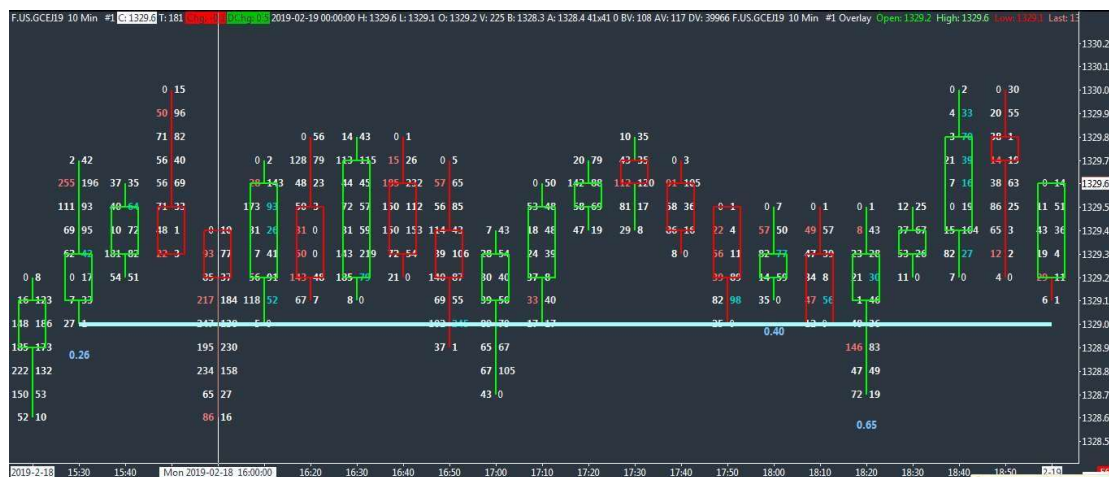
Parameters



- Offset for Book Ratio display - this parameter controls the placement of the calculated Book Ratio below an up bar or above a down bar. The value entered is the number of price ticks from the low or high of the bar at which the ratio is to be displayed.
- BR Up Color – the Book Ratio for an up bar will be displayed using this color.
- BR Down Color - the Book ratio for a down bar will be displayed using this color.

- Show Exhaustion values? – Normally we are only interested in the stopping volume, so this parameter will be set to No, but if it is required to display Exhaustion values, set it to Yes.
- Max.Stopping Volume ratio to extend as a level – We can use this parameter to limit the number of stopping volume levels displayed on the chart. Stopping volume ratios always have a value less than 1, so if we wish to use all possible stopping volume prices as levels to project on the chart, we can set the value to 1. Otherwise, we can set the parameter to a lower value such as 0.25, and only book ratios less than or equal to 0.25 will be used to project levels.
- Number of bars to project Stopping Volume levels – set the value to the number of bars over which the Stopping Volume level should be projected following the signal bar.
- Stopping Vol. Level Up Bar Color – the Stopping Volume level for an up bar will be displayed using this color.
- Stopping Vol. Level Down Bar Color – the Stopping Volume level for a down bar will be displayed using this color.
- Stopping Volume Line Width – the width of the Stopping Volume levels can be adjusted using this parameter.
- Minimum Bid Volume to calculate Book Ratio – We can use this parameter to limit the calculation of Book Ratio to only those up bars that have meaningful bid volume. Obviously, the value should be set according to the market and the time frame involved.
- Minimum Ask Volume to calculate Book Ratio – We can use this parameter to limit the calculation of Book Ratio to only those down bars that have meaningful ask volume. Obviously the value should be set according to the market and the time frame involved.

Example



This Book Ratio of 0.26 on the 15:30 up bar provided a Stopping Volume level that ensured there was no close below this price level for the rest of the session.

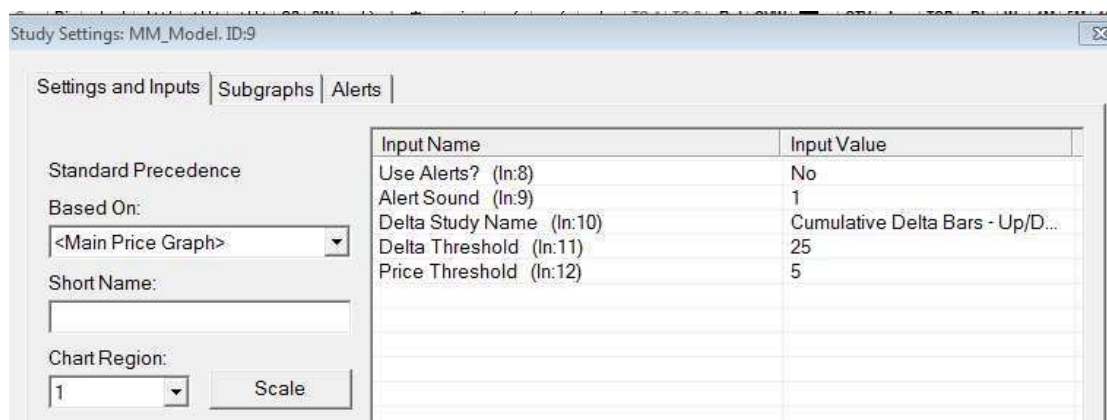
For additional examples of using Book Ratio, see the following video in the Members' Area:
121818 - Order Flow – Exhaustion – Book ratios – Ice Orders.

Market Maker Model

We know that normally a Market Maker will get short on an up tick and go long on a down tick, so if we see evidence that a Market Maker is going short on a down tick, i.e. selling at a lower price, or going long on an up tick, i.e. buying at a higher price, we know that they have a directional bias, and that can give us a pointer to a high probability trade.

The Market Maker's position is always opposite to the delta we see on each candle. Therefore, if we see a down candle with positive delta, that means the Market Maker is bearish on a down candle, and we can expect price to go lower. Likewise, if we see negative delta on an up candle, that means the Market Maker is bullish on an up candle, and there is a good chance that price will go higher.

Parameters



Input Name	Input Value
Use Alerts? (In:8)	No
Alert Sound (In:9)	1
Delta Study Name (In:10)	Cumulative Delta Bars - Up/D...
Delta Threshold (In:11)	25
Price Threshold (In:12)	5

- Use Alerts? . set to “Yes” if alert messages are to be broadcast when a Market Maker setup appears.
- Alert sound – if alerts are being used, set this parameter to select the sound to be played with the alert.
- Delta Study Name – the indicator can work with different Delta studies. Enter the name of the Delta study you wish to use.
Note: the Delta study should be loaded on the chart before you load the MM Model indicator.
- Delta Threshold – in order to limit the signals to cases where we have a meaningful delta bar, set this value to the minimum value of the delta (difference between the open and the close of the delta bar).
- Price Threshold – likewise, we can limit the signals by using the size of the price bars (difference between open and close of the bar in ticks).



For additional material regarding the MM Model, see the following video in the Members' Area, January 2019:

01-11-19 Market Maker Model – Liquidity/Auction Process

Example

VPIN

We know that a series of large volume trades tends to be predictive of price movement simply because many traders view the arrival of such orders as evidence that the large volume buyer/seller knows something about the market that is not generally known, and therefore it would be wise to trade with them rather than against them. Such traders are often called "informed traders", and their order flow is often called "toxic flow". Toxic, that is, to the uninformed market maker.

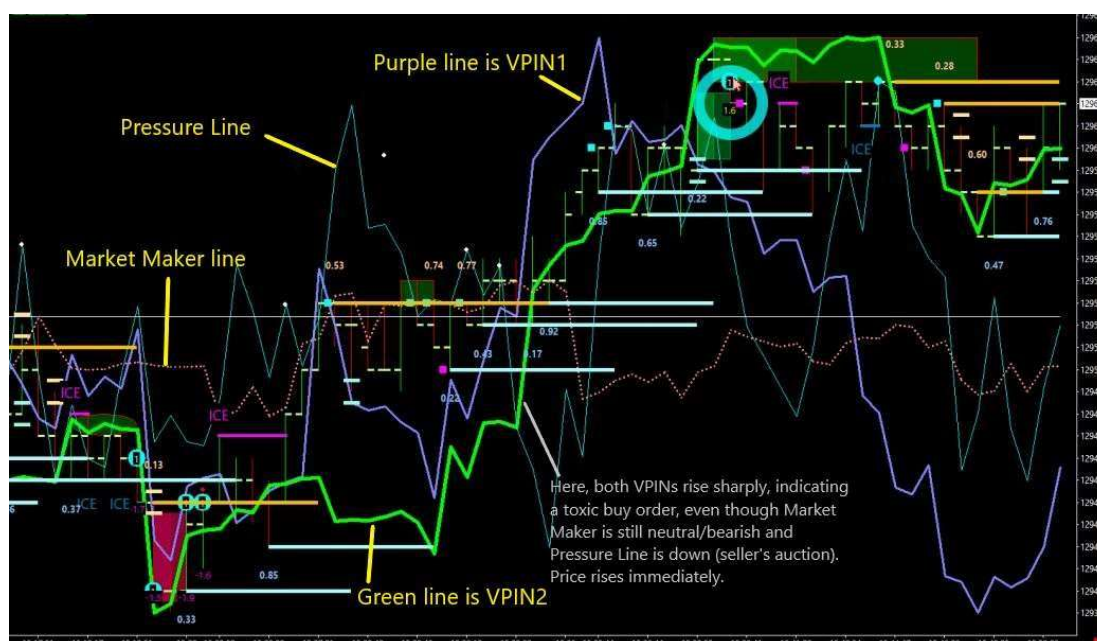
In theory, we (and the market maker) should be able to watch trades tick by tick and determine that if a trade takes place at the ask, it's a buy and if a trade takes place at the bid, it's a sell. However, in practice, a substantial amount of trading takes place in dark pools or via hidden orders, so order flow is not computable with 100% accuracy. To address this problem, a number of researchers proposed an alternative method to compute order flow. Based on volume bars, the method assigns a fraction of the volume in that bar to "buy" or "sell" depending on whether it's an up bar or a down bar. (The assignment formula is based on the cumulative probability density of a Gaussian distribution). The absolute difference between buy and sell volume expressed as a fraction of the total volume is called "VPIN", or Volume-Synchronized Probability of Informed Trading. The higher VPIN is, the more likely we will experience short-term momentum due to informed trading.

The OFTEN package provides two versions of VPIN. VPIN1 is based on a calculation of order flow over a short window (typically 50 bars or less), while VPIN2 computes on a cumulative basis throughout the session. VPIN1 will usually react more quickly than VPIN2, but ideally, we watch for a strong move in both indicators as a probable signal of toxic order flow.

Parameters (VPIN1 only)

Input Name	Input Value
Book Depth (ln:11)	50

- ☐ Book Depth determines the number of bars over which the calculation of VPIN is based. The lower the number, the more sensitive VPIN will be to volume fluctuations, but the greater the risk of false signals. A higher value will be less sensitive but give better quality signals.



For additional material regarding the VPIN indicators, see the following video in the Members' Area, April 2019:

04-05-19 Friday Daily Focus Session – Market Maker – Often Demystified – Toxic Orders

Ice Order

Institutional traders who are entering the market to buy or sell a large number of contracts will very often use iceberg orders to conceal the true size of their trade in order to avoid pushing price away from their planned entry level.

One way to detect the existence of ice orders is to look for price levels where the ask volume or bid volume traded at that price is significantly higher than the average liquidity available. The Ice Order indicator flags these price levels for you.

Parameters

Input Name	Input Value
Multiplier (In:2)	3
Volume Threshold (In:3)	50
Signal type (In:5)	SQUARE_OFFSET_RI...
Signal size (In:6)	6
Signal color (In:7)	R: 255, G: 182, B: 147

- Multiplier – This parameter determines when the current bid or ask volume is deemed to be significantly higher than the average liquidity at that level. If we set the multiplier to three

Example

then the indicator will flag any bid or ask volume that is at least three times higher than the average (assuming that the Volume Threshold is also satisfied – see below).

- Volume Threshold – In very thin markets, the liquidity volumes can be small, and clearly we're not interested in every case where bid or ask volume happens to be three times higher than a very low average liquidity. The Volume Threshold parameter sets a minimum value for the bid or ask volume in order to be considered as a possible ice order, and the indicator will only flag cases where the bid or ask volume is equal to or greater than this value and satisfies the Multiplier condition described above.
- Signal type - the default signal is a small square plotted to the right of the bar at the price level where the ice order is detected. If required, a different signal type can be selected. Refer to the available types on the following page <https://www.sierrachart.com/index.php?page=doc/ChartStudies.html> and search for Draw Types.
- Signal Size – this parameter can be used to adjust the size of the signal.
- Signal Color – if required, a different color can be selected for the signal by adjusting this parameter.

Note: - The Market Depth Historical Graph must be present on the chart. For instructions on how to set up Market Depth for the symbol, see this page:

<https://www.sierrachart.com/index.php?page=doc/StudiesReference.php&ID=375#StepByStepInstructions>

In the example below, on a 30-second ES chart at the end of an up move, we can see a cluster of ice orders between the 3123 and 3124 price levels, with the large volumes consistently on the bid side, indicating some heavy selling. While this doesn't necessarily mean that you should enter a short trade, it serves as a warning to take profits if you happen to be in a long trade at that time. Eventually price does reverse and starts heading down.



Stop Run

At times, the break of a certain price level can initiate a rapid withdrawal of liquidity, with no bid volume (in the case of a rapid up move) or no ask volume (in the case of a rapid down move) visible at a given level, as price moves rapidly beyond the break. This is often the case with stop runs. This indicator identifies price levels within a bar at which a zero bid volume or zero ask volume has been detected.

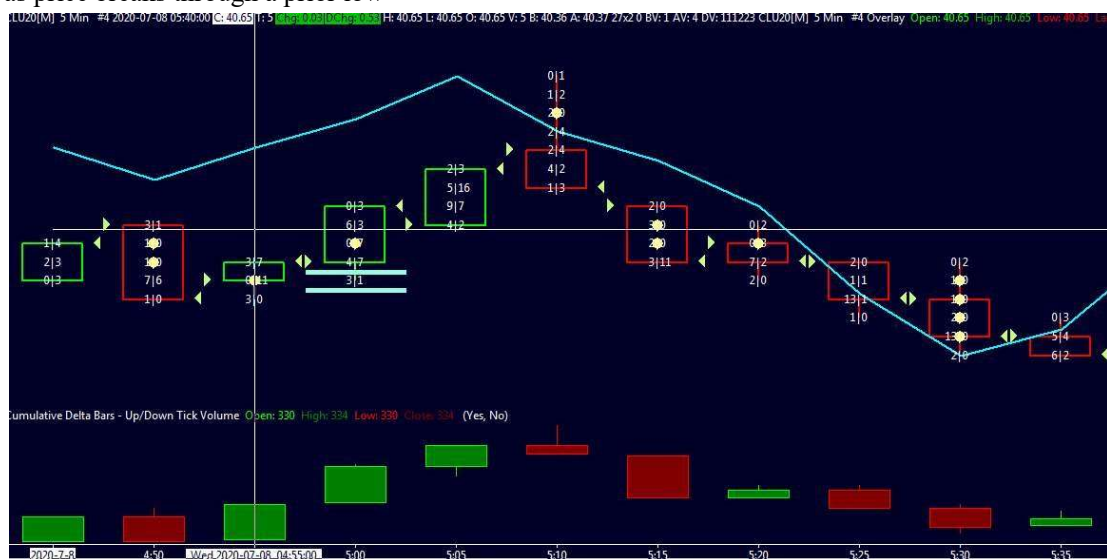
Parameters

Input Name	Input Value
Signal type (In:5)	POINT
Signal size (In:6)	6
Signal color (In:7)	R: 255, G: 255, B: 128

- Signal type - the default signal is a small dot plotted in the middle of the bar at the price level where the stop run is detected. If required, a different signal type can be selected. Refer to the available types on the following page <https://www.sierrachart.com/index.php?page=doc/ChartStudies.html> and search for Draw Types.
- Signal Size – this parameter can be used to adjust the size of the signal.
- Signal Color – if required, a different color can be selected for the signal by adjusting this parameter.

Example

In the example below, on a 5-minute CL chart, we see a series of zero Ask volumes on the 5:30 bar as price breaks through a prior low



Block Trades

This indicator signals large buy and sell trades that identify price levels that are of key interest to institutional traders. By monitoring the size and direction of these block trades, we can build a picture of current institutional activity and gain some insight into the likely direction of the market.

Note: this indicator automatically opens a 1-tick chart, which is used to calculate block trade sizes. This tick chart will be displayed when you first add the Block Trades indicator to the main price chart. Simply click on the main chart tab at the bottom of the window to re-display the main price chart.

Parameters

Study Settings: Block Trades v1.1, ID:1

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:
<Main Price Graph>

Short Name:
[]

Chart Region:
1 [] Scale

Value Format:
Inherited []

☐ Display As Main Price Graph

☐ Hide Study

☐ Draw Study Underneath Main Price Graph

☐ Protect with Password

DLLName.FunctionName
OFtenIndicatorSuite.sc

☒ Include in Study Summary

☒ Include in Spreadsheet

Input Name	Input Value
Volume Filter (In:1)	240
Block Buy Color (In:2)	R: 4, G: 134, B: 33
Block Sell Color (In:3)	R: 198, G: 0, B: 198
Multiple Block Trade Color (In:4)	R: 215, G: 218, B: 218
Signal Transparency (In:11)	50
Text Color (In:15)	R: 255, G: 255, B: 255
Text Size (In:16)	12
Signal Size (In:17)	3
Signal Extend (In:18)	1
Use Alerts? (In:23)	No
Block Buy Alert Sound Number (In:24)	1
Block Sell Alert Sound Number (In:25)	2
Multiple Block Trade Alert Sound Number (In:26)	3
Block Array Size (In:33)	50
Draw Underneath Main Chart? (In:34)	No

Input
Select an input in the list above

OK Cancel Apply Help Description Set Defaults Reset Defaults

- Volume Filter – this parameter specifies the minimum volume that can be considered to be a block trade. Only trades with a volume equal to or greater than this value will be displayed.
- Block Buy Color - this color will be used on all block buy trade signals and will be used for the text in cases where both buy and sell block trades occur at the same price, but the larger volume is on the buy side.
- Block Sell Color - this color will be used on all block sell trade signals and will be used for the text in cases where both buy and sell block trades occur at the same price, but the larger volume is on the sell side.

- Multiple Block Trade Color – this color will be used for the signal in cases where both block buying and block selling occur at the same price. In such cases, the color of the text will indicate whether the larger volume was on the buy side or the sell side.
- Signal Transparency – Set this parameter to the level of transparency required on block trade signals on the chart. Values can be in the range 0 (not transparent, i.e. totally opaque) to 100 (totally transparent, i.e. not visible).
- Text Color – this color will be used for the text in cases where the block trading is all in one direction.
- Text Size – the size of the text showing the block trade details can be adjusted using this parameter.
- Signal Size – this parameter controls the height of the colored rectangle that signals the buy or sell block trade.
- Signal Extend – this parameter controls the width of the signal rectangle over a number of bars, allowing you to extend the price levels at which block trades have occurred.
- Use Alerts? – Set this parameter to “Yes” to display an alert message and play a sound when a block trade is identified.
- Alert Sound Numbers – you can select the Alert sound to be played, depending on whether the trade is a Block Buy, a Block sell, or forms part of a Multiple Block trade situation.
- Use Debug? – Set this parameter to “No” unless you are asked to provide a copy of the Message Log in the event of an indicator error.
- Block Array Size – this parameter controls the maximum number of price levels within a bar for which block trade data will be calculated. A value of 50 means that the indicator will display block trade signals for up to 50 different price levels on an individual bar. The value may need to be increased in times of extreme volatility and/or when using large time frames when bar sizes (and, therefore, the number of price levels on the bar) may be exceptionally large. A large array size will mean that the indicator reserves a large amount of memory to store the array, and this will increase the Working set Memory of Sierra Chart. Example



On this 1-minute ES chart, most of the block trades in the initial part of the up move are on the buy side, but as the move continues, block selling becomes more evident, and eventually, we see a reversal in price.

Price Reversal (PRev)

Although fading swing highs and lows can be a risky practice, when the right conditions exist, it can be a profitable strategy, especially for traders who prefer scalping on short time frames.

The Price Reversal indicator, PRev, hunts for setups with the correct conditions for a change in price direction. As always, do not rely on a single indicator signal to enter a trade. Look for confirmation, for example, with a value line.

Note: this indicator signals in real-time on the current bar while conditions meet the required criteria. It can happen that those conditions change during the evolution of the bar, and the signal will then disappear. However, in such cases, it will mark the price on the bar at which the signal occurred, as that price level may be relevant for support or resistance considerations on subsequent bars.

Parameters

Input Name	Input Value
Lookback Period (In:2)	5
Volume Threshold Basis (In:3)	Volume
Volume Threshold (In:4)	30
Use Alerts? (In:26)	No
Alert Sound (In:27)	1
Offset for signal (In:28)	1

- Lookback Period – the indicator looks for setups at the highest high or lowest low of a given period as defined by this parameter. Set this value to the number of bars to be considered in the look back to determine whether or not the current bar is higher than the preceding bar highs or lower than the preceding bar lows.
- Volume Threshold Basis – this parameter determines whether Bid/Ask Volume or Delta is to be used as a filter so that signals are only displayed when the relevant threshold (see below) has been surpassed. If Volume is selected, then for a reversal signal at the bar high, the Ask Volume must exceed the threshold, and for a reversal signal at the bar low, the Bid Volume must exceed the threshold. In the case of Delta, the maximum delta at the bar high must exceed the threshold value, or the minimum delta at the bar low must be lower than the threshold value multiplied by minus 1.
- Volume Threshold – specifies the level of volume or delta (see above) that must be present in order for the reversal signal to be displayed. The default value is 0, meaning that signals will always be displayed when the other criteria are met. However, if this results in too many false signals, then select a threshold value according to the thickness and volatility of the market being traded.
- Use Alerts? - If set to Yes, then an alert will be displayed and the alert sound (see below) will be played when a price reversal signal occurs. If set to No, then no Alert message or sound will be used when a signal occurs.

- Alert Sound - If Use Alerts is set to Yes, then the alert sound indicated by the number in this parameter will be played when an alert condition is detected.
- Offset for Signal – set this parameter to the number of ticks above the bar high or below the bar low at which the reversal signal should appear. Adjusting this value can avoid signals from several indicators being superimposed on each other.

Example



On this 5-minute ES chart, we can see several reversal signals, each of which would have provided profitable entries by using a relatively tight stop of a few ticks.

Value Divergence

An imminent move in a particular market can often be preceded by two correlated value lines diverging. The Value Divergence indicator works in a similar fashion to the Market Divergence indicator, drawing sloping lines on the value lines to illustrate the divergent moves.

Note: In order to provide an early warning of a divergent move, the divergence is drawn as soon as it is detected, without waiting for a confirmation bar to form a swing high or swing low that would terminate the move. Therefore, it is possible that the divergence signal may turn out not to be fully valid as subsequent price moves evolve, so it is recommended to evaluate the market context before making a trading decision.

Parameters

Input Name	Input Value
Input Data (In:1)	Last
No. of preceding highs/lows (In:2)	2
No. of following highs/lows (In:3)	1
Length (In:4)	100
No. of swing highs/lows to check for divergence (In:5)	4
Min. number of bars between swings (In:6)	5
ID of first value line (In:7)	ID1.SG1
Value Line 1 chart region (In:8)	2
ID of second value line (In:9)	ID2.SG1
Value Line 2 chart region (In:10)	3
Show Historical Divergence? (In:11)	No
Bullish Divergence Color (In:12)	R: 255, G: 255, B: 0
Bearish Divergence Color (In:13)	R: 255, G: 255, B: 255
Use Alerts? (In:14)	No
Alert Sound (In:15)	1

- Input Data – can be Open, High, Low or Last. It's recommended to use Last, i.e. the latest value on the current bar
- No. of preceding Highs/lows , No. of following highs/lows– The indicator looks for divergence from an initial swing high or swing low on Value Line 1. The presence of a high is identified by a number of preceding lower highs and a number of following lower highs. The presence of a low is identified by a number of preceding higher lows and a number of following higher lows.
- Length – Maximum number of bars over which to look back for the start of a divergence.
- No. of swing highs/lows to check for divergence – the indicator can check the most recent swing high/low against a selected number of prior swing highs/lows, determined by this parameter, in order to look for divergence. If this number is low then the divergence check will be limited to the last few swing highs/lows. A higher number will extend the check further back to include swing highs/lows that occurred some time ago.
- Minimum number of bars between swings – swing highs/lows in very close proximity can essentially be viewed as a single price point rather than discrete price levels that may constitute a divergent move. In order to eliminate signals caused by swing highs/lows that are very close together, we can use this parameter to specify the minimum number of bars that must be present between two swings in order to be evaluated separately.
- ID of first Value Line – Enter the chart ID of the first value line to be used in the divergence checks. Value Line 1's highs and lows will be used as the basis for assessing divergence with Value Line 2. So, if from a given high on Value Line 1, the slope to its current value on the right hand edge is down, and the slope of Value Line 2 between the same two points on the chart is up, then we have divergence.
- Value Line 1 Chart Region – Enter the number of the chart region in which Value Line 1 is plotted.
Note: because of the need to identify divergence line end points using the correct scale for the value lines, the two value lines must be in separate chart regions and cannot be plotted in the main chart region (as the scale there relates to the main chart symbol).

- ID of second value line – Enter the chart ID of the second value line that is to be compared with Value Line 1.
- Value Line 2 Chart Region - Enter the number of the chart region in which Value Line 2 is plotted.
- Show historical divergence? - If set to No, the indicator will display only the most recent occurrence of divergence of each type (one based on highs, one based on lows). If set to Yes, the indicator will display all occurrences of divergence found in the lookback period defined by the Length parameter (see above).

Note – a divergence based on the slope at the right hand edge may remain valid for several bars and if historical divergence is set to Yes, the indicator will show every occurrence of each divergence over several bars, which can result in many lines being drawn in close proximity, so it is recommended to avoid displaying historical divergence on a live chart.

- Bullish Divergence Color / Bearish Divergence Color – There are two types of divergence identified by the indicator – one based on the highs of Value Line 1 and one based on the lows. These divergences can be coloured differently.- However, they do not necessarily indicate bullish or bearish signals with regard to the main chart, but simply show opposite moves of the two value lines.

Note - it is possible that the two divergences will show slopes in the same direction. For example, if value Line 1 is making lower highs and lower lows and, over the same period, value Line 2 is moving up, then the two divergence lines (one on the highs and one on the lows) on Value Line 1 will both be down and those on Value Line 2 will both be up.

- Use Alerts? – enter Yes if you want to be alerted each time a divergence is identified.
- Alert Sound – if alerts are being used, enter the number of the alert sound to be played.

Example



One-Three Point

The One-Three point indicator helps to identify potential top and bottom edges by using the existence of balance areas as levels of supply and demand on which we can base measured moves from swing highs/lows to provide potential entry points and subsequent target levels for profit taking.

Video reference : 06-04-21 1-3 Point Exercise

Parameters

Study Settings: OneThreePoint_v01.ID:3

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

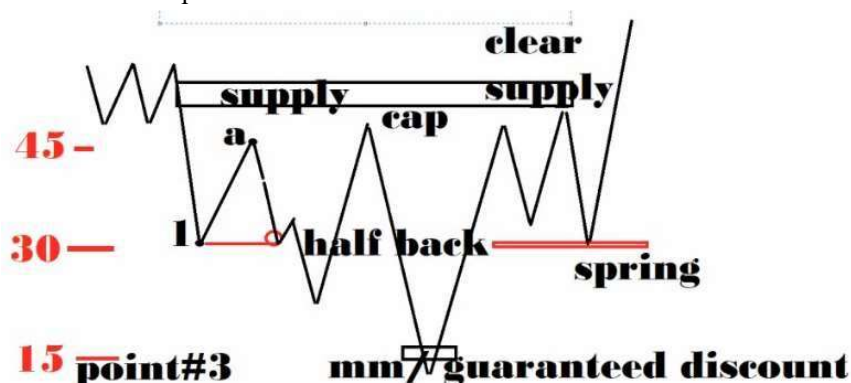
Based On:

Short Name:

Chart Region:

Input Name	Input Value
No. of preceding highs/lows (In:2)	2
No. of following highs/lows (In:3)	1
Show Fractals? (In:12)	No
Up fractal color (In:13)	R: 0, G: 255, B: 128
Down fractal color (In:14)	R: 255, G: 0, B: 128
Minimum Distance to Cap (In:15)	4
Sell Zone Color (In:16)	R: 255, G: 128, B: 255
Buy Zone Color (In:17)	R: 159, G: 250, B: 133
Proximity (in ticks) (In:18)	2
Zone Transparency (In:19)	20

- No. of preceding Highs/lows , No. of following highs/lows– The indicator uses swing highs and lows (fractals) to measure the moves between different levels. The presence of a swing high is identified by a number of preceding lower highs and a number of following lower highs. The presence of a swing low is identified by a number of preceding higher lows and a number of following higher lows.
- Show Fractals?- Enter “Yes” to display a small triangular marker against each fractal on the chart. Enter “No” to disable the marking of fractals.
- Up fractal color / Down fractal color – If the Show Fractals parameter is set to “Yes”, you can select the colors with which to display the up and down fractals.
- Minimum distance to Cap – We are only interested in sufficiently large moves within the structure that represent strong buying or selling. Of special importance is the distance from the current extremity of the move to the cap. See the drawing below for an illustration of the position of the cap within the structure.



- Sell Zone Color / Buy Zone Color – The indicator will draw a shaded area on the chart to represent the level at which Point 3 is expected to be placed and at which a potential trade

entry may be possible. The shaded area can be displayed with the colors selected in these two parameters. The shaded area will be extended until either a new structure with a new point 3 is identified, or price comes within a certain number of ticks of the level, as determined by the Proximity parameter (see below).

- Proximity (in ticks) – This parameter defines how closely price needs to come to the precalculated Point 3 level in order for it to be considered as having reached Point 3. The shaded area will be plotted using this parameter to determine its width.
- Zone Transparency – This parameter controls the level of transparency of the shaded area around the Point 3 level. A value of zero will make the shaded area totally opaque, while a value of 100 will make it totally transparent (i.e. not visible). Example



On this ES chart, we can see several Point 3 levels illustrating potential trade entries at both top and bottom edges.



On occasions, the use of a second indicator such as PRev can provide confirmation of the validity of the Point 3 level and the subsequent price direction.

Delta Divergence

Any divergence between Cumulative Delta and price action is worth monitoring, as it indicates a possible change in direction and a trade opportunity. The Delta Divergence indicator highlights such cases.

Note: you do not need to load the Cumulative Delta study on the chart; the divergence indicator draws the Cumulative Delta bars for you

Parameters

Input Name	Input Value
Select Cumulative Delta Type (In:2)	Volume
Reset at Start of Trading Day (In:3)	Yes
Reset at Both Session Start Times (In:4)	No
Use High/Low Filter? (In:5)	No
No. of bars for high/low check (In:6)	5
Divergent Delta Up Bar color (In:7)	R: 0, G: 255, B: 255
Divergent Delta Down Bar color (In:8)	R: 255, G: 0, B: 255
Use Alerts? (In:9)	No
Alert Sound (In:10)	1

- Select Cumulative Delta Type – The indicator will draw the Cumulative Delta bars using the approach selected here, by entering either Volume or Up/Down Tick Delta.
- Reset at Start of Trading Day: If this parameter is set to Yes, then the cumulative delta calculation is reset at the start of the trading day. The start of the trading day is determined from the session times that are set in Chart>>Chart Settings. This will be the Start Time or if the Evening Session is enabled, then it will be the Evening Start Time.
- Reset at Both Session Start Times: If this parameter is set to Yes, then the parameter Reset at Start of Trading Day is implied to always be on and the description for that parameter applies. Additionally, there is another reset which occurs at the Evening Start Time if the Evening Session is enabled for the chart.
- Use High/Low Filter? If this parameter is set to Yes, then the indicator will only signal a bearish divergence that is found on a bar whose high is at the high of the last x bars, and will only signal a bullish divergence that is found on a bar whose low is at the low of the last x bars, where x is the number of bars specified in the parameter No. of bars for high/low check (see below),
If this parameter is set to No then all divergences will be displayed.
- No. of bars for high/low check: If the Use High/Low Filter parameter (see above) is set to Yes, then this parameter must be set to the number of bars to be checked when determining if the current bar is at the highest high or lowest low over that number of bars.
- Divergent Delta Up Bar Color – when a divergence is found where the delta bar is up but the price bar is down, the delta bar will be displayed with this color.

- Divergent Delta Down Bar Color – when a divergence is found where the delta bar is down but the price bar is up, the delta bar will be displayed with this color.
- Use Alerts? - If this parameter is set to Yes then an alert message will be displayed to indicate that a divergence has been detected and an alert sound (see below) will be played.
- Alert Sound – If alerts are being used, enter the number of the sound to be played when a divergence is found.

Example



On this 1-minute UB chart we can see several divergence signals painted on the delta bars, each of which was followed by a change of market direction in the succeeding price bars.

Immediate Divergence

This indicator is a variant of the OFten Market Divergence indicator, but the Immediate Divergence indicator does not wait for a confirmation from succeeding bars before issuing a divergence signal. Of course, this means that some signals may subsequently be invalidated by the price action that follows and, for that reason, it is risky to enter a trade solely on the basis of an Immediate Divergence signal. However, it can often be advantageous to have an early warning that divergence is forming, especially if the divergence is in a direction opposite to the trader's current position, in which case it may be wise to take some profit.

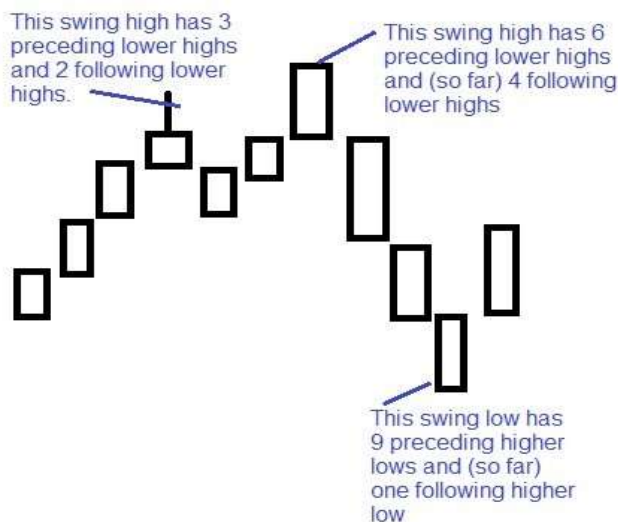
Parameters

Input Name	Input Value
Input Data (In:1)	Last
No. of preceding highs/lows (In:2)	2
No. of following highs/lows (In:3)	1
Length (In:4)	100
No. of swing highs/lows to check for divergence (In:5)	4
Min. number of bars between swings (In:6)	5
ID of Study to compare with price (In:7)	ID1.SG1
Use Alerts? (In:8)	Yes
Alert Sound (In:9)	1
Bullish Divergence Color (In:11)	R: 255, G: 255, B: 0
Bearish Divergence Color (In:12)	R: 255, G: 255, B: 255

- Input Data – this parameter is used to select the price data of the main market to be used in the divergence comparison. Normally, this parameter is set to “Last” in order to use the last price or closing price of each bar.
- No. of preceding highs/lows – a swing high will be preceded by a number of lower highs, and a swing low will be preceded by a number of higher lows. The higher the value of this parameter, the more important the swing high/low is likely to be. However, this will result in fewer swing highs/lows being found and therefore fewer divergence signals.
- No. of following highs/lows – a swing high will be followed by a number of lower highs, and a swing low will be followed by a number of higher lows. The higher the value of this parameter, the more important the swing high/low is likely to be. However, this will result in fewer swing highs/lows being found and therefore fewer divergence signals.

Note: The Immediate Divergence indicator determines the current direction, up or down, of the market price and the value line by comparing the current price/value against the price/value at a prior swing high/low, so the parameters described above for preceding and following highs/lows apply only to the start position of the divergence.

See the diagram below for examples of swing highs and lows with the count of preceding highs/lows and following highs/lows.



- Length – this parameter defines how far back (number of bars) the indicator should go in order to find recent swing highs and lows. The number should be selected in line with the volatility of the market and the settings selected above for preceding and following highs/lows, so that a manageable number of swing highs/lows are found.
Note: if you see error messages in the Message Log saying “Bear Array full” or “Bull Array full”, it means that you are trying to use too many swing highs and lows in your analysis. This can usually be corrected by reducing the Length parameter and/or increasing the value for No. of preceding highs/lows.
- No. of swing highs/lows to check for divergence – the indicator can check the most recent market price and value of the comparison study against a selected number of prior swing highs/lows, determined by this parameter, in order to look for divergence. If this number is low then the divergence check will be limited to the last few swing highs/lows. A higher number will extend the check further back to include swing highs/lows that occurred some time ago.
- Minimum number of bars between swings – swing highs/lows in very close proximity can essentially be viewed as a single price point rather than discrete price levels that may constitute a divergent move. In order to eliminate signals caused by swing highs/lows that are very close together, we can use this parameter to specify the minimum number of bars that must be present between two swings in order to be considered separately.
- ID of Study to Compare with Price – a drop-down menu is available to allow the selection of the study or market to be compared against the main market for divergent moves. The study / market must have already been added to the main chart, either as an overlay or by using the Add Additional Symbol study (see https://www.sierrachart.com//index.php?page=doc/StudiesReference.php&ID=400&Name=Add_Additional_Symbol)

If the study / market has more than one value that can be used (for example an Overlay Bar study or Additional Symbol study will have an Open, High, Low, Close, etc.) then select the relevant value to be compared.

IMPORTANT the Compare study / market must be placed in Chart Region 2 for the divergence lines to draw correctly.

- Use Alerts? – if set to Yes, then an alert will be sounded whenever a divergence is detected on the chart and a message written to the Alerts Log.

Note: It is possible that a divergence condition remains valid over several bars, and the indicator will alert on each successive bar as long as the divergence remains valid.

- Alert Sound – enter the number of the sound to be played when an alert condition arises.
- Bullish Divergence Color – select the color of lines to be used to show standard bullish divergence.
- Bearish Divergence Color – select the color of lines to be used to show standard bearish divergence.

Example



On this UB 1-minute chart, the most recent bullish and bearish divergences are displayed. Both would have led to profitable trades.

Wholesale Price Levels

Price action is often drawn towards major price levels, known as wholesale price levels. This utility plots wholesale price levels based on a user-defined price increment and will display alerts when price is approaching a wholesale level.

Parameters

Input Name	Input Value
Wholesale price increment (In:8)	100
Number of levels to display (In:9)	20
Proximity for signal in ticks (In:10)	3
Wholesale Price Line color (In:13)	R: 207, G: 207, B: 207
Wholesale Price Line width (In:14)	2
Wholesale Price Line Style (In:15)	Dot
Signal Frequency (In:16)	By Price Level
Signal Reset Distance (in ticks) (In:17)	40
Alert Sound (In:18)	1

- Wholesale Price Increment – Enter the number of ticks to be used as the price level increment when determining the wholesale levels. For example, on an ES chart, you may want to set the increment at 40 ticks which will display the wholesale levels every 10 points. On a CL chart, you may want to set the increment every 25 ticks, so wholesale levels will appear at xx.00, xx.25, xx.50, and xx.75. For bonds, you may want to set the increment at 8 ticks, so wholesale levels will appear at xx 0/32, xx 8/32, xx 16/32 and xx 24/32.
- Number of levels to display – You can limit the number of levels displayed on the chart. Enter the number of wholesale levels above and below the current price that should be displayed.
- Proximity for signal in ticks – This parameter controls how close price needs to be to the wholesale level before the signal will be issued. If set to 3, then the signal will be issued as soon as price comes within three ticks of the wholesale level. If set to zero, then the signal will only be issued when price touches the wholesale level.

Note: the value of Proximity must be smaller than that of the Wholesale Price Increment.

- Wholesale Price Line Color / Width / Style – Use these parameters to format the lines displayed at wholesale levels on the chart
- Signal Frequency – For this parameter, there are two possible settings: By Price Level and By Bar.

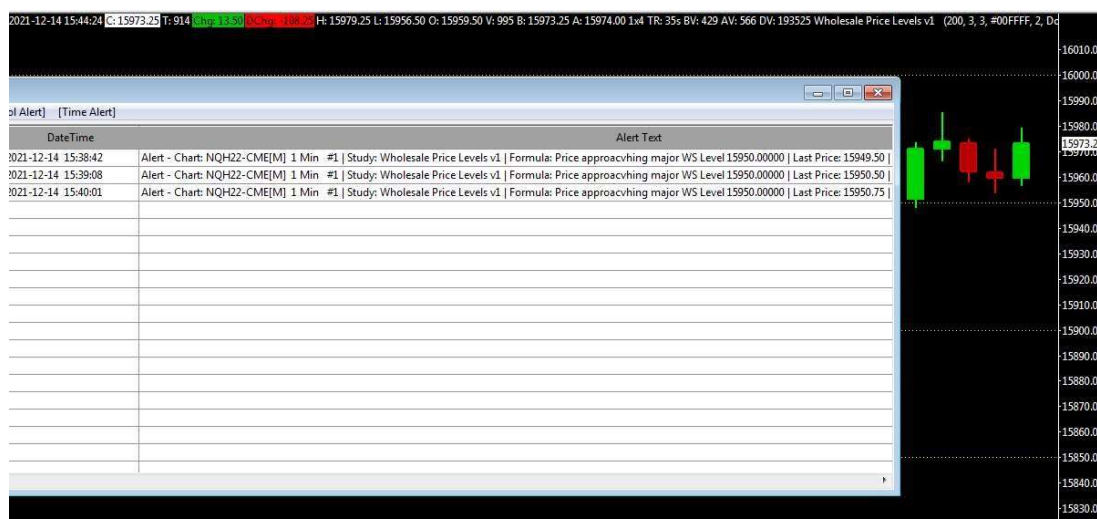
If By Price Level is selected, then a signal will be given the first time that price comes within the Proximity value of a wholesale level. If price moves away from that wholesale level by the number of ticks specified in the Signal Reset Distance parameter (see below), the prior signal is deemed to have expired and, if price subsequently returns to that same wholesale level, then a new signal will be issued. However, if price moves away from the wholesale level but does not reach the Signal Reset Distance value, then even if it returns to the wholesale price, no additional signal will be issued.

If By Bar is selected, then a new signal will be issued once on each bar where price moves within the Proximity value of a wholesale level. . If price moves away from that wholesale level by the number of ticks specified in the Signal Reset Distance parameter (see below), the prior

signal is deemed to have expired and, if price subsequently returns to that same wholesale level, then a new signal will be issued on the same bar. However, if price moves away from the wholesale level but does not reach the Signal Reset Distance value, then even if it returns to the wholesale price, no additional signal will be issued.

- **Signal Reset Distance (in ticks)** – Once a signal has been issued when price reached the Proximity zone of a wholesale level, if price subsequently moves away from that wholesale level by at least the number of ticks specified in the Signal Reset Distance parameter, then the prior signal is deemed to have expired and, if price subsequently returns to that same wholesale level, then a new signal will be issued.
- **Alert Sound** – Enter the number of the Alert Sound to be played when a wholesale level is approached. A message identifying the wholesale level concerned will also be written to the Alert Manager.
Alert sounds can be turned off by setting the Alert Sound parameter to zero.

Example



In this NQ chart, using the By Bar setting of the Signal Frequency parameter, we see alerts on each of the bars where price came within the Proximity value of the wholesale price level at 15950.00.

Depth of Market

The Depth of Market indicator displays current market depth data over a specified number of price levels. The information can be displayed for the current Bid volume, Ask volume, Total volume, BidAsk, and Ask-Bid.

Parameters

Input Name	Input Value
Start depth level (In:2)	0
End depth level (999 = all) (In:3)	4
Calculation Type (In:4)	Bid-Ask
Show Bid volume? (In:5)	Yes
Show Ask volume? (In:6)	Yes
Show Calculated volume? (In:7)	Yes

Calculation Type: Bid-Ask, Ask-Bid, Total

- **Start Depth Level** – This parameter specifies the number of the price level at which the data is to start accumulating. Price levels are numbered starting from 0 (zero) which is the price level of the current inside bid/ask (see the price level numbering sequence below).



- End Depth Level – This parameter specifies the price level at which the market depth data finishes accumulating. Enter 999 if data is to be accumulated over all available market depth levels.
Example: if the Start Depth Level is set to zero and the End Depth Level is set to 4, this will accumulate market depth data over five levels.
- Calculation Type – Use the dropdown menu (see the Parameters screenshot above) to select one of the following calculation types: Bid – Ask, Ask – Bid, Total (sum of both Bid and Ask depth values).
- Show Bid Volume? – Set this parameter to Yes to plot the accumulated Bid depth volume.
- Show Ask Volume? – Set this parameter to Yes to plot the accumulated Ask depth volume.
- Show Calculated Volume? – Set this parameter to Yes to plot the accumulated the Calculated depth volume, based on the selected Calculation Type.

Example



In the above example on a 1-minute CL chart, we are plotting Depth of Market data over 10 price levels. The green line is the Total Bid volume. The red line is the Total Ask volume. The yellow line is the calculated Bid – Ask volume.

The numbered lines indicate points at which we can see liquidity increasing on one side (bid or ask) while liquidity is being withdrawn on the other side, followed by a move of price in the direction of the added liquidity.



In this example on a 1-minute ES chart, we are comparing Depth of Market Bid–Ask volume on the first 5 price levels nearest to the inside bid/ask (yellow line) with the volume on the next 5 levels further out (purple line).

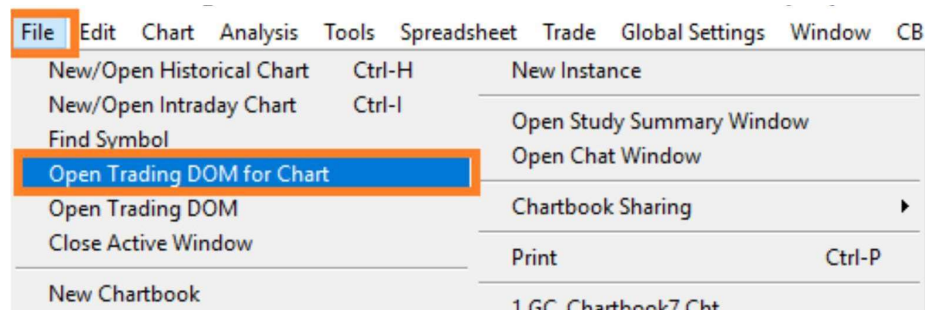
Notice the spikes in the bid volumes at 17:13 (on the inner levels) and 17:14 (on the outer price levels) which are immediately pulled as price starts to move down from the highest high.

DOM - Stacking and Pulling

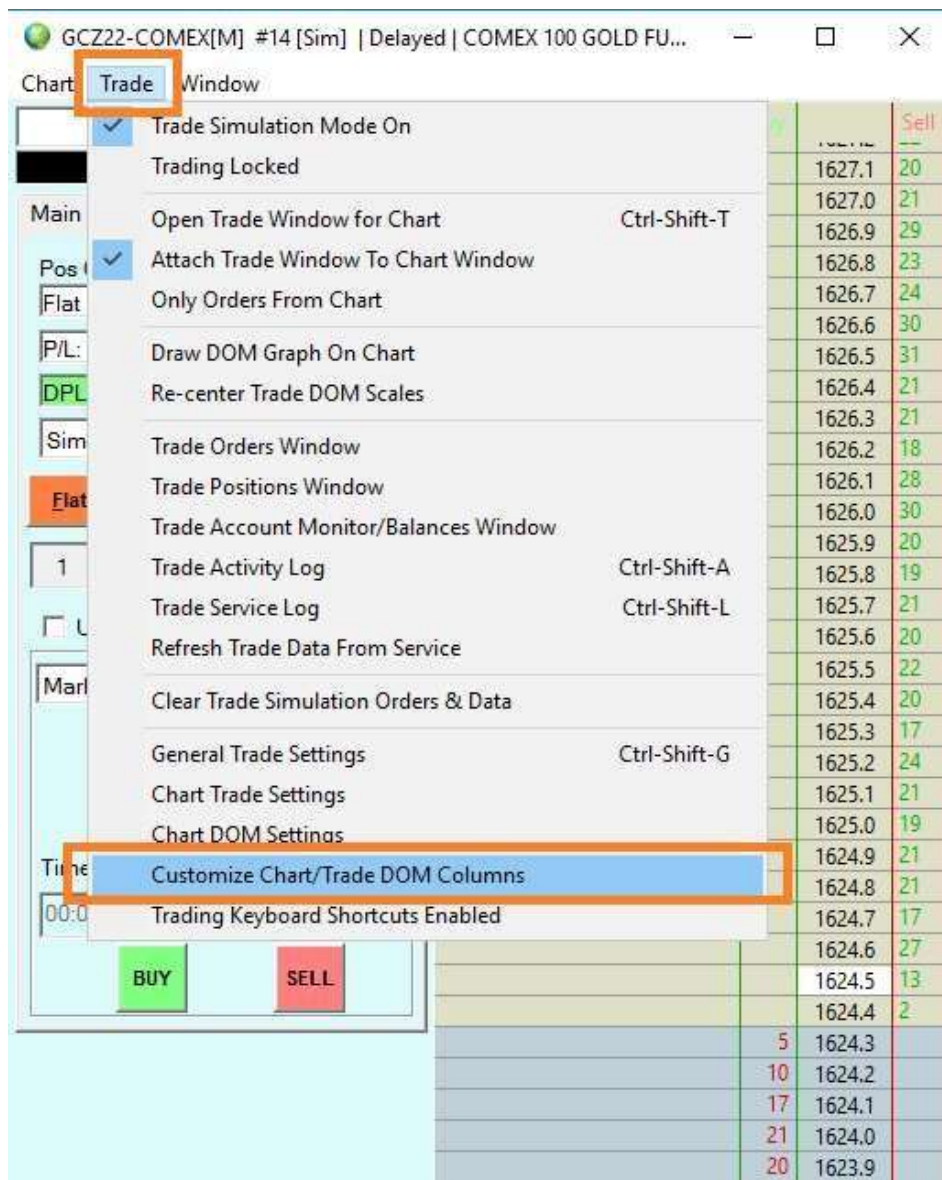
This indicator monitors the addition and withdrawal of liquidity over a given number of price levels. The stacking of orders on one side of the book (bid or ask) usually implies strength in that direction, e.g. stacking of bids will usually imply a bullish bias, as it will require a higher volume of market sell orders to move price down through the additional bids. Conversely, the pulling of bids will usually imply a bearish bias, as it will require fewer market sell orders to move price down. The indicator aggregates the stacking of bids and the pulling of offers, as both imply a bullish bias. Likewise, it aggregates the stacking of offers and the pulling of bids, as both imply a bearish bias.

Note: in order to plot stacking and pulling data, columns for these items must be added to the DOM for the symbol being traded. Follow the instructions below to add the stacking and pulling columns:

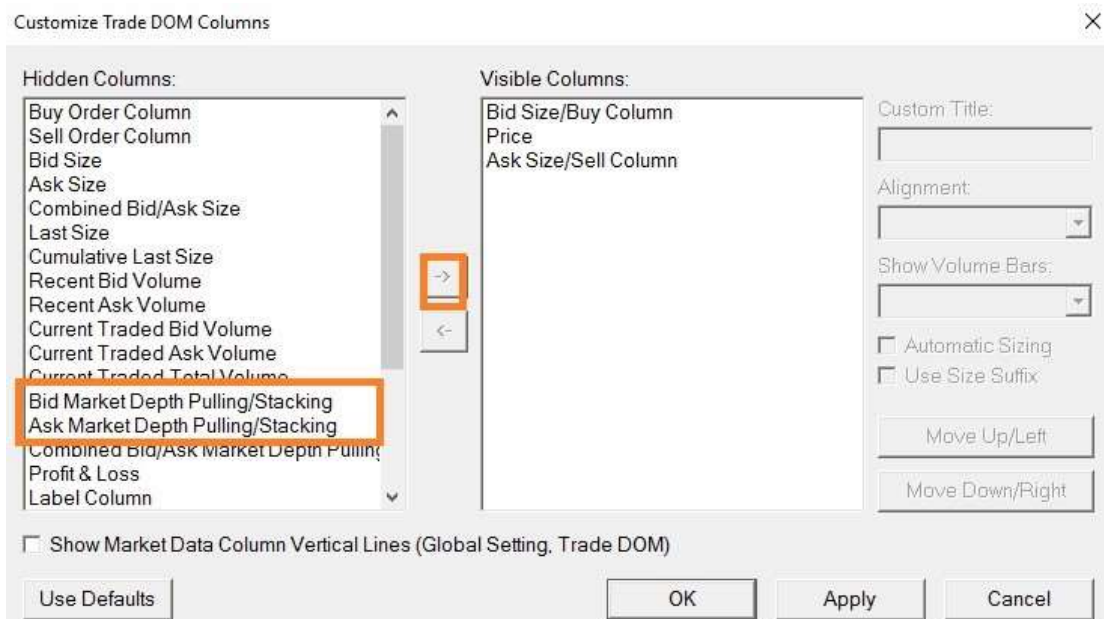
1. Open the Trading DOM for the chart by clicking on File >> Open Trading DOM for Chart as shown below:



2. In the DOM window, click on Trade >>Customize Chart/Trade DOM Columns as shown below:



3. In the Customize Trade DOM Columns window, select the Bid Market Depth Pulling/Stacking and the Ask Market Depth Pulling/Stacking columns and click on the right pointing arrow to add these columns to the list of Visible Columns.



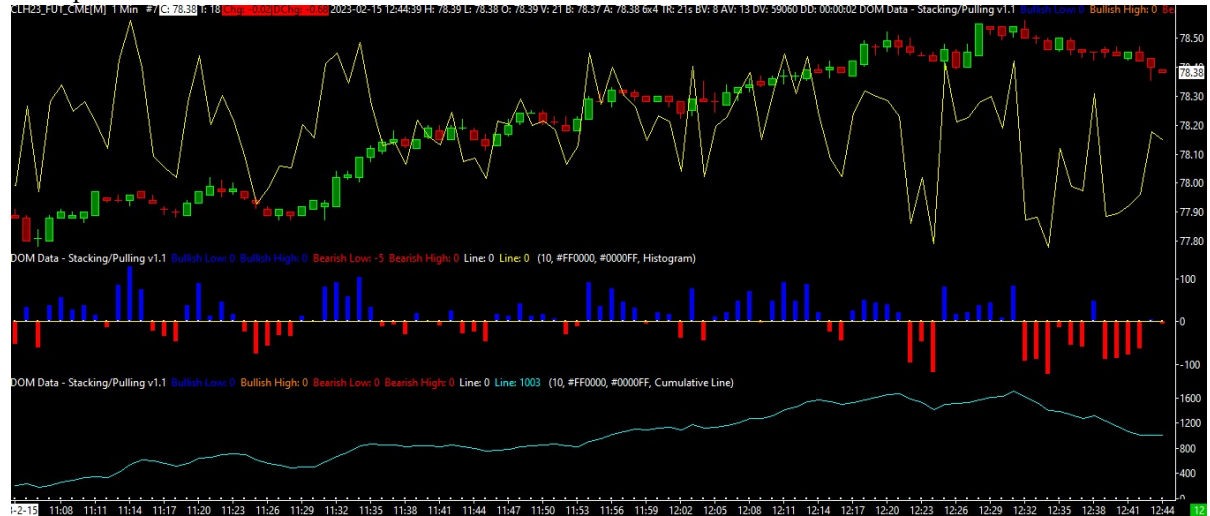
Note: None of the stacking/pulling data will show (neither in the Stacking/Pulling indicator nor in the Numbers Bars Calculated Values 2) unless those columns are first added to the DOM.

However, once they've been added to the DOM, the values start to appear in both the indicator and the Numbers Bars. Even if you delete the DOM, the stacking/pulling data remains, and if you close the indicator and reload it, the values start to appear again even if the DOM is not open. So, clearly Sierra sets a flag somewhere to say that stacking/pulling data is allowed for this symbol, and if you open a new chart for the symbol, even on a different timeframe, the indicator will start plotting the stacking/pulling data. Also, if you save the chartbook, you can close the chartbook, re-open it and the indicator will start plotting data again (although you lose all history). If you then re-open the DOM for the chart, the columns for stacking/pulling are no longer there, but the indicator keeps plotting. So, you just need to set the columns once in the DOM and save the chartbook and that will retain the setting.

[illegible]

- ## Order Flow Trading Enhancements for Sierra Chart

Example



In this example on the 1-minute Crude Oil chart, the three available output displays are shown. The Line Bar by Bar is in yellow on the main chart, the histogram is underneath, and the Cumulative Line in cyan is shown at the bottom. Each of the available output formats can be displayed on the main chart if required.

Example



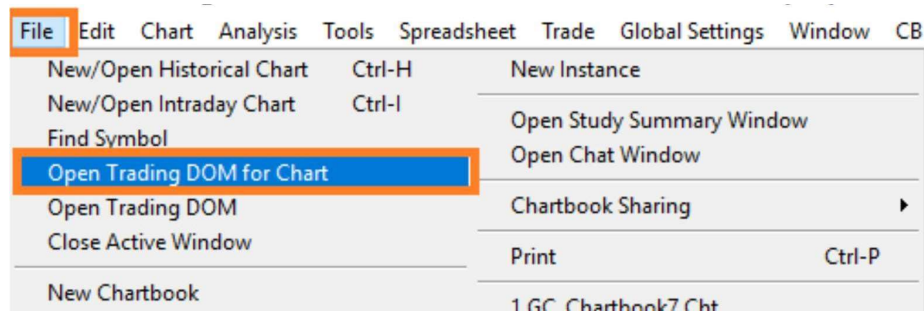
Plotting the Cumulative Line over differing numbers of price levels can help to provide a clearer view of overall sentiment. In this example, the dotted line shows the cumulative stacking/pulling over the first 4 price levels. The solid line shows the cumulative stacking/pulling over 15 price levels. It is clear that taking a wider view helps to confirm the strength of buyers on the up move and, later, that of sellers on the down move.

DOM – Recent Bid/Ask Volume

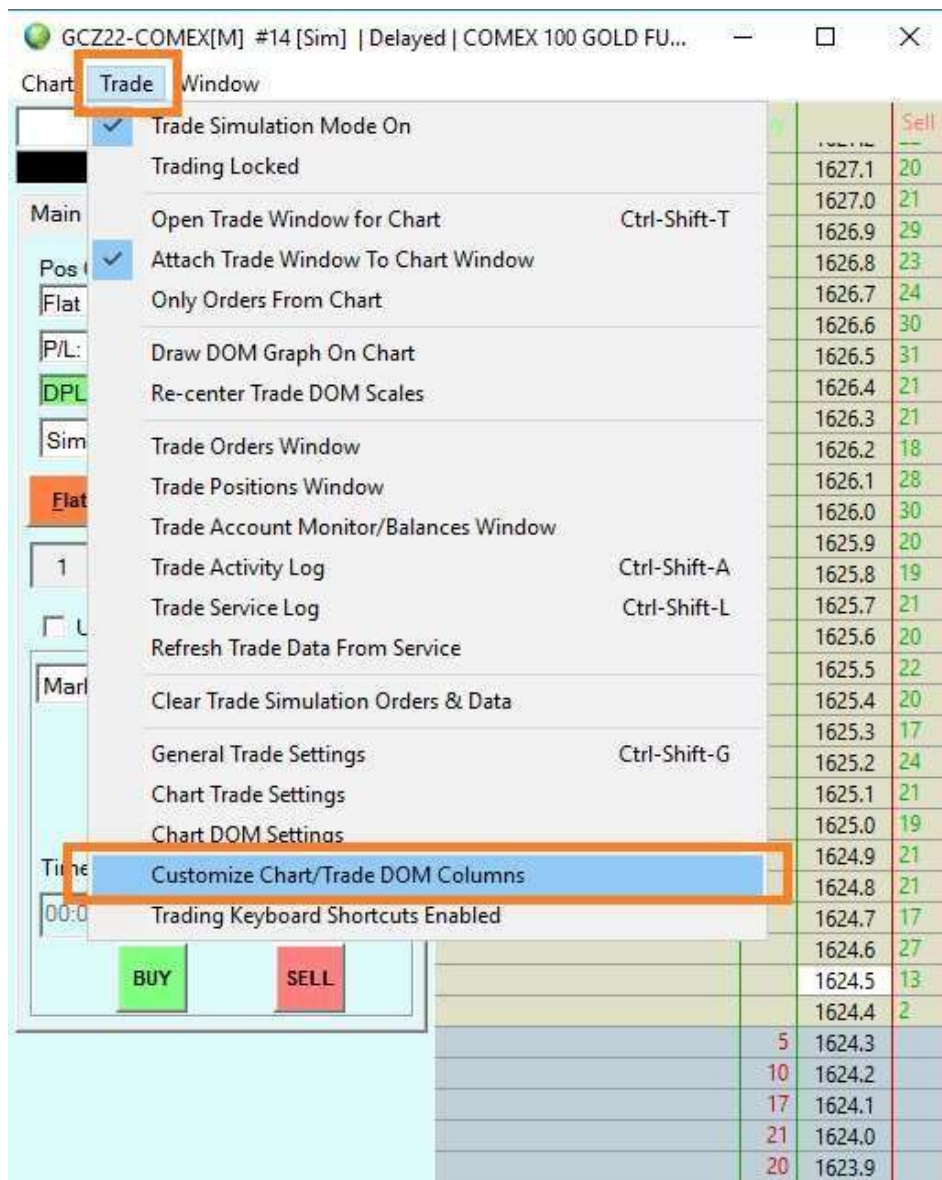
This indicator monitors the volume of recent trades over several price levels. Viewing recent trade volumes helps to monitor the current strength of buying and selling in the market. Trades at the bid are viewed as bearish, as it means that sellers were prepared to accept a price below the best ask. Trades at the ask are viewed as bullish, as it means that buyers were prepared to pay a price above the best bid.

Note: in order to plot recent trade volumes, columns for these items must be added to the DOM for the symbol being traded. Follow the instructions below to add the recent trade volume columns:

- Open the Trading DOM for the chart by clicking on File >> Open Trading DOM for Chart as shown below:



- In the DOM window, click on Trade >>Customize Chart/Trade DOM Columns as shown below:



- In the Customize Trade DOM Columns window, select the Recent Bid Volume and Recent Ask Volume columns and click on the right pointing arrow to add these columns to the list of Visible Columns.

Hidden Columns:

- Buy Order Column
- Sell Order Column
- Bid Size
- Ask Size
- Combined Bid/Ask Size
- Last Size
- Cumulative Last Size
- Recent Bid Volume**
- Recent Ask Volume**
- Current Traded Bid Volume
- Current Traded Ask Volume
- Current Traded Total Volume
- Bid Market Depth Pulling/Stacking
- Ask Market Depth Pulling/Stacking
- Combined Bid/Ask Market Depth Pulling/Stacking
- Profit & Loss
- Label Column

Visible Columns:

- Bid Size/Buy Column
- Price
- Ask Size/Sell Column

Custom Title:

Alignment:

Show Volume Bars:

☐ Automatic Sizing

☐ Use Size Suffix

Move Up/Left

Move Down/Right

☐ Show Market Data Column Vertical Lines (Global Setting, Trade DOM)

Use Defaults OK Apply Cancel

Note: None of the Recent Bid/Ask Volume data will show (neither in the Recent Bid/Ask Volume indicator nor in the Numbers Bars Calculated Values 2) unless those columns are first added to the DOM.

Parameters

Study Settings: DOM Data - Recent Bid/Ask Volumes v1.5. ID:4

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:

<Main Price Graph>

Short Name:

Chart Region:

1 Scale

Input Name	Input Value
Number of depth levels (0 = all) (In:2)	4
Bullish Color (In:3)	R: 0, G: 255, B: 255
Bearish Color (In:4)	R: 255, G: 0, B: 255
Output Style (In:5)	Bar by Bar Line
Reset Cumulative Line at Session Start? (In:8)	Yes

- Number of depth levels - Set this parameter to the number of price levels above and below the best bid/best ask over which you want to accumulate recent bid/ask volumes. Set to zero to include all available price levels.
- Bullish Color - select the color to be used when plotting net bullish values of recent volumes.
- Bearish Color - select the color to be used when plotting net bearish values of recent volumes.
- Output Style – select the desired style of display. The following three styles are available:

- a Histogram – where net bullish recent volume shows as a bar above the zero line and net bearish recent volume shows as a bar below the line.
- b Line Bar by Bar – displays the net recent volume on each bar as a line rather than a histogram. This is effectively plotting a line on close for the histogram bars.
- c Cumulative Line – displays a cumulative value for net recent volume over the whole period. The cumulative value can be reset to zero at the start of the session.
- Reset Cumulative Line at Session Start – select Yes to reset the Cumulative Line value to zero at the start of each session or set to No to maintain the Cumulative Line value over several sessions.

Example

DOM – Liquidity Monitor

The DOM Liquidity Monitor plots cumulative movement in book liquidity over a selected range of price levels.

Parameters

Settings and Inputs | Subgraphs | Alerts

Standard Precedence

Based On:
<Main Price Graph>

Short Name:

Chart Region:
2

Scale

Input Name	Input Value
Start depth level (0=BestBid/Offer) (In:2)	0
End depth level (999 = all) (In:3)	9
Calculation Type (In:4)	Bid-Ask
Bullish Color (In:5)	R: 0, G: 255, B: 255
Bearish Color (In:6)	R: 255, G: 0, B: 255
Reset at Session Start? (In:8)	Yes

- **Start Depth Level** – This parameter specifies the number of the price level at which the data is to start accumulating. Price levels are numbered starting from 0 (zero) which is the price level of the current inside bid/ask (see the price level numbering sequence below).



- End Depth Level – This parameter specifies the price level at which the market depth data finishes accumulating. Enter 999 if data is to be accumulated over all available market depth levels.
Example: if the Start Depth Level is set to zero and the End Depth Level is set to 4, this will accumulate market depth data over five levels.
- Calculation Type – Use the dropdown menu to select one of the following calculation types: Bid – Ask, Ask – Bid, Total (sum of both Bid and Ask depth values).
- Bullish Color - select the color to be used when plotting net bullish values of liquidity.
- Bearish Color - select the color to be used when plotting net bearish values of liquidity.
- Reset at Session Start – select Yes to reset the Liquidity Monitor value to zero at the start of each session or set to No to maintain the Liquidity Monitor value over several sessions.

Example



On this 1-minute CL chart we can see that the Liquidity Monitor line became sharply more bearish just before price dropped in a fast move downwards. The fact that the Liquidity line remained low even as price moved back towards the top edge, was a signal that price would continue to encounter resistance, giving several opportunities to fade the top edge.

DOM History

The DOM indicators (Stacking/Pulling, Recent Volume and Liquidity Monitor) described above share a common disadvantage in that any changes made to the chart on which they are plotted will result in the indicators being reset, and all history of their plotted values will be lost.

The DOM History indicator provides a solution to this problem.

In principle, you can set up one or more **reference** charts with the DOM indicators you wish to use, with a variety of parameter settings (e.g. number of price levels, output line format) and leave those charts to run unmodified throughout the session. You can then create new **live** charts in the same chartbook, using the DOM History indicator to retrieve historical data from any of the reference chart indicators and plot it on the live charts. You are then free to make any changes on the live charts (e.g. changing time scale, or adding another indicator) without losing the DOM history.

For example, let's assume you want to use Stacking/Pulling over 10 price levels and Liquidity Monitor over 15 levels using the Cumulative Line output for both, together with The Recent Volume indicator over 4 levels, output as a bar-by-bar line. All of these indicators are to be available on 15-second, 1-minute and 5-minute GC charts.

Your **reference** chart for GC should be on the lowest required time scale (in this case, 15 seconds) and have the following indicators and parameter settings:

- Stacking/Pulling 10 levels, cumulative line.
- Liquidity monitor 15 levels, cumulative line.
- Recent Bid/Ask Volume, bar by bar line.

You can then use the DOM History indicator on one or more live GC charts to reference any or all of the reference indicators and apply them on any time scale that is a multiple of the reference time scale of 15 seconds – the DOM History indicator will convert from the reference time scale to the selected live chart time scale. Changes to the live chart can be made as often as required without losing any of the DOM history (as long as you make no changes to the reference chart). You can, of course, add more reference charts and settings to the chartbook as required.

Parameters

Settings and Inputs | Subgraphs | Alerts |

Standard Precedence

Based On:

Short Name:

Chart Region:

Value Format:

☐ Display As Main Price Graph

☐ Hide Study

☐ Draw Study Underneath Main Price Graph

☐ Protect with Password

DLLName.FunctionName

☒ Include in Study Summary

☒ Include in Spreadsheet

Input Name	Input Value
Study Reference (In:1)	#4.ID1
Bullish Color (In:3)	R: 0, G: 255, B: 255
Bearish Color (In:4)	R: 255, G: 128, B: 255

The # number refers to the number of the reference chart within the chartbook.

The ID number identifies the indicator to be used as reference

Study Reference

- **Study Reference** – there are two parts to this parameter, the # value identifies the number of the reference chart within the chartbook and the ID is the number of the relevant indicator on that reference chart.
- **Bullish/Bearish Color** – these settings will override any color settings on the reference chart, so they can be changed as often as desired.

The screenshot below shows the list of studies on the reference chart.

Chart Studies for: GCM23-COMEX[M] 15 Sec #4

Studies Available:	Studies to Graph:
1 Divided by Price	1 ID:1 DOM Data - Stacking/Pulling 0 ms CalcOrder: 1
3/10 Oscillator	2 ID:2 Liquidity Monitor v1 1 ms CalcOrder: 2
AC/DC Histogram	3 ID:3 DOM Data - Recent Bid/Ask Volumes
Account Balance Graph - External Service	
Account Balance Text - External Service	
Accumulation/Distribution (Williams)	
Accumulation/Distribution Flow	
Adaptive Center of Gravity Oscillator	

☒ Show Settings

Gold Scalper

This indicator is designed to support scalp trading of the Gold market using Silver and Copper value and skew lines together with the Often Pressure Line and Cumulative Delta. A strength score between -8 and +8 is calculated (and optionally displayed) in real time, and the current predicted price direction is plotted on the chart. Note that, the calculated score and, therefore, the associated predicted direction may change on the current bar as value lines and delta evolve. Watch for increasing positive scores (indicating a potential bullish move) or decreasing negative values (indicating a potential bearish move).

This indicator is based on concepts introduced in the following class:

09-30-22 Gold Quick Start Trade Exercise

Important: As always, don't rely on one indicator alone as the reason to enter a trade. Use it in conjunction with other order flow signals to build an overall understanding of current market bias.

Parameters

Study Settings: GoldScalper_v1.7. ID:7

Settings and Inputs | Subgraphs | Alerts

Standard Precedence
Based On: <Main Price Graph>
Short Name:
Chart Region: 1 Scale
Value Format: Inherited

☐ Display As Main Price Graph
☐ Hide Study
☐ Draw Study Underneath Main Price Graph
☐ Protect with Password
DLLName.FunctionName
GoldScalper_v1.scsf_0
☒ Include in Study Summary
☒ Include in Spreadsheet

Input Name	Input Value
ID of Gold_Silver Value (In:1)	ID1.SG3
ID of Gold_Silver Skew (In:2)	ID2.SG3
ID of Gold_Copper Value (In:4)	ID3.SG3
ID of Gold_Copper Skew (In:5)	ID4.SG3
ID of Pressure Line (In:6)	ID5.SG1
ID of Cumulative Delta (In:7)	ID6.SG4
Number of bars for Value Line slope (In:17)	1
Show Text Score? (In:18)	Yes
Text Horizontal Offset (In:19)	1
Text Vertical Offset (In:20)	100

Input
Select an input in the list above

OK Cancel Apply Help Description Set Defaults Reset Defaults

*** Load the Chartbook GC_Chartbook7 which contains charts and parameter settings to display the Gold chart as shown in the example on the next page.***

(If you are not using the Denali data feed, you may need to change the symbols used in the chartbook).

- ID of Gold_Silver Value – set this parameter to the ID and subgraph of the value line showing the Gold/Silver relationship.
- ID of Gold_Silver Skew - set this parameter to the ID and subgraph of the value line showing the Gold/Silver Skew relationship.
- ID of Gold_Copper Value - set this parameter to the ID and subgraph of the value line showing the Gold/Copper relationship.
- ID of Gold_Copper Skew - set this parameter to the ID and subgraph of the value line showing the Gold/Copper Skew relationship.
- ID of Pressure Line - set this parameter to the ID and subgraph of the Pressure Line indicator.
- ID of Cumulative Delta - set this parameter to the ID and subgraph of the Cumulative Delta indicator.
- Number of Bars for Value Line Slope – the calculation of predicted price movement is partly based on the rate of movement of the value lines as determined by their slope up or down, and this can be assessed over a number of bars in the range 1 to 20.
- Show Text Score? – the calculated strength score can optionally be displayed on the chart by setting this parameter to ‘Yes’.
- Text Horizontal Offset – this parameter determines the horizontal offset of the strength score text on the chart. The offset value is in the range 1 to 100, where 1 places the text at the left edge of the chart and 100 places the text at the right edge.
- Text Vertical Offset - this parameter determines the vertical offset of the strength score text on the chart. The offset value is in the range 1 to 100, where 1 places the text at the bottom edge of the chart and 100 places the text at the top edge.

Example



Performance Considerations when using OFten

Sierra freezes – what to look for

On occasions, you may load an indicator, or change a parameter, and suddenly Sierra freezes and doesn't respond. What caused the problem?

One thing you should check is to see if Sierra's memory usage or CPU usage is extremely high. To check this, start the Windows Task Manager. Go to the Processes tab. Select **View >> Select Columns** on the menu. Make sure the Memory - Working Set column is enabled. Press OK. Locate the SierraChart.exe process in the list and see if the Working Set memory is very high. Typically, a lightly loaded Sierra will be using less than 100MB. If your memory usage is way above (e.g. 1GB or more) then it will have a detrimental effect on performance and, depending on what else is running on your PC, may cause it to freeze due to insufficient memory.

To reduce memory usage, be careful when using multiple OFten indicators on multiple charts that are all displaying order flow data. If you have many days of data on the chart, this will consume a lot of memory. You can easily reduce the number of days of data being held on the chart without losing valuable information. Typically, if you're scalping or short-term trading and using order flow analysis to support your decision-making, you are predominantly watching the current day's action with perhaps some studies that show levels (e.g. Stacked imbalances or SR levels) from previous days. It's unlikely that you will reference many weeks of data during your live trading, so you can reduce the number of days loaded on the chart to something small like 5 or even 3 and still have all you need. If you really need to see several weeks of data, just load a standard hourly chart without numbers bars.

If you see very high CPU usage is causing the freeze, then you can check if one of the OFten indicators is responsible as follows: when you restart Sierra, close the chartbook(s) that use OFten indicators. Use the Windows Task Manager to check the CPU usage. If it is still very high, then the problem lies in another study or feature that you are using. If CPU usage is normal, add the chartbook using OFten and watch the effect on CPU usage. If it is very high, then send me details of which charts you have loaded and which indicators were running so that I can try to reproduce the problem and find the cause.