



Random Musings from A Student of the Markets

Essentials of Order Flow

Introduction

Chapter I – Volume by Price

Chapter II – Footprint

Chapter III – Time & Sales

Chapter IV – DOM

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Introduction

Order Flow has been presented as a mystique to potential Traders as well as seasoned Traders. In many cases it is assumed to be an insanely difficult concept to understand. Order Flow is, at its core, the transaction between a Buyer and a Seller. As a Veteran Trader using Order Flow to base my decisions, I can say that order flow is the very core of any market.

Where a Buyer and Seller agree on a price a trade happens. Their orders may be for 1 share or 1 contract, or they could be for many thousands. There is nothing else that is involved in a trade.

That said, there are various ways to read how the orders are affecting price. Better said, there are various ways to read how the orders are affecting the price. How they are flowing into a particular price.

The scope of this work is to review four basic styles to look at Order Flow. I say “styles” because we must first agree that orders flowing into the market is well the market. I will walk you through the critical chart types that define how charting the order flow can benefit Novice and Seasoned Traders alike.

- I. **Volume by Price** (aka Volume Profile): specifically looks at total volume at one specific price horizontally.
- II. **Numbers Bars** (aka The Footprint): This Study, when applied to a bar chart, exposes the Bids and Offers at price. This is a granular look at the detailed order flow which makes up the bar.
- III. **Time and Sales** (aka The Tape): As the name implies, this is a detailed look at each transaction taking place and at what time it is taking place.
- IV. **The DOM** (Depth of Market): This is where the rubber meets the road. The DOM shows us what orders are in the book. It shows us Market Orders hitting the Bid and lifting the Ask. It makes it possible to see who is in control at any given moment whether it be the Buyers or Sellers. It is the source of truth for Order Flow.

I am presenting the information in this work, highlighting the core of my trading strategy. This document has been broken down into sections which will define the use of each of the tools listed above. When combined, they produce a functional strategy from which I can make informed trading decisions in both the E-mini S&P500 and the E-mini Nasdaq 100 futures contracts.

Volume by Price

Frankly I consider Volume by Price to be a higher-level view of where orders flowed, by definition, Volume by Price is not true Order Flow. Volume by Price defines the basic structure of the market price action, or the areas of support and resistance based on accumulation of orders or lack of orders.

We must understand three primary items in a Volume by Price chart.

- I. Point of Control (POC): The POC is the price at which the greatest number of contracts traded. The actual price with the highest volume. The theory is the POC is the point where more Traders agreed the price was fair.
 - a. You must understand this is the highest volume for the duration you have set on the profile. I.e.: if the profile is set for the session, then whatever is happening in the session to that time will be tabulated.
 - b. It's not static. The POC is dynamic and moves as volume changes. When trades occur, if there are more trades at a higher or lower price than the current POC, the POC will move just as soon as there is 1 greater contract at a different price.
- II. Low Volume Nodes (LVN): The low volume node is exactly what it says, the lowest volume point in your volume profile chart. Most notable occurrence surrounding the LVN is they clearly define:
 - a. Prices have broken above a previous high leaving the LVN or poor trading structure. This will often result in price returning to that area to repair the poor structure. Hence on an OHLC chart price breaks above a previous resistance point and then comes back to test that previous high, notably price will then resume the upward trend.
 - b. There are more LVNs below the market than above. As stated above the back filling usually evens out the structure.
 - c. LVNs have a higher value the longer the term.
 - i. Previous day LVNs has higher value than session LVNs
 - ii. Weekly LVNs have higher value that previous day LVNs
 - iii. Monthly LVNs have a higher value than weekly LVNs
 - d. Reasoning for higher value is directly related to the volume of trades below the LVN.
- III. High Volume Node (HVN): Well, it sticks out more than a LVN and less than the POC, but they offer a hidden value. They show a higher volume of trades which essentially means you have a higher probability of back-and-forth market action and a higher probability of getting chopped up.

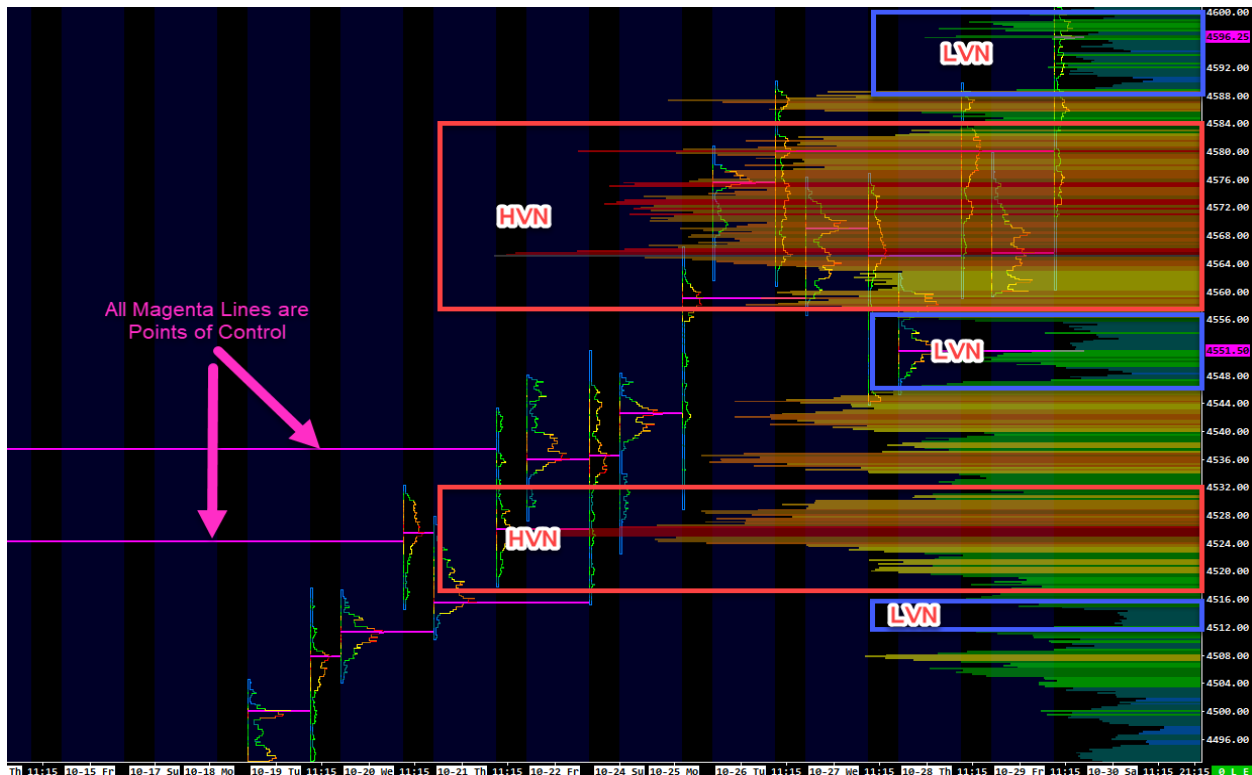
Let's put this together with some chart examples to define the section above looking at the POC, LVN and HVN. It is critical to identify each zone to trade in and which to stay away from.

Daily Prep Workspace (Action Plan) Volume Profile

Putting things together and moving through our initial step in understanding Volume by Price (VbP). We will define the market context before we begin to read deeper into true Order Flow. This is our action plan phase.

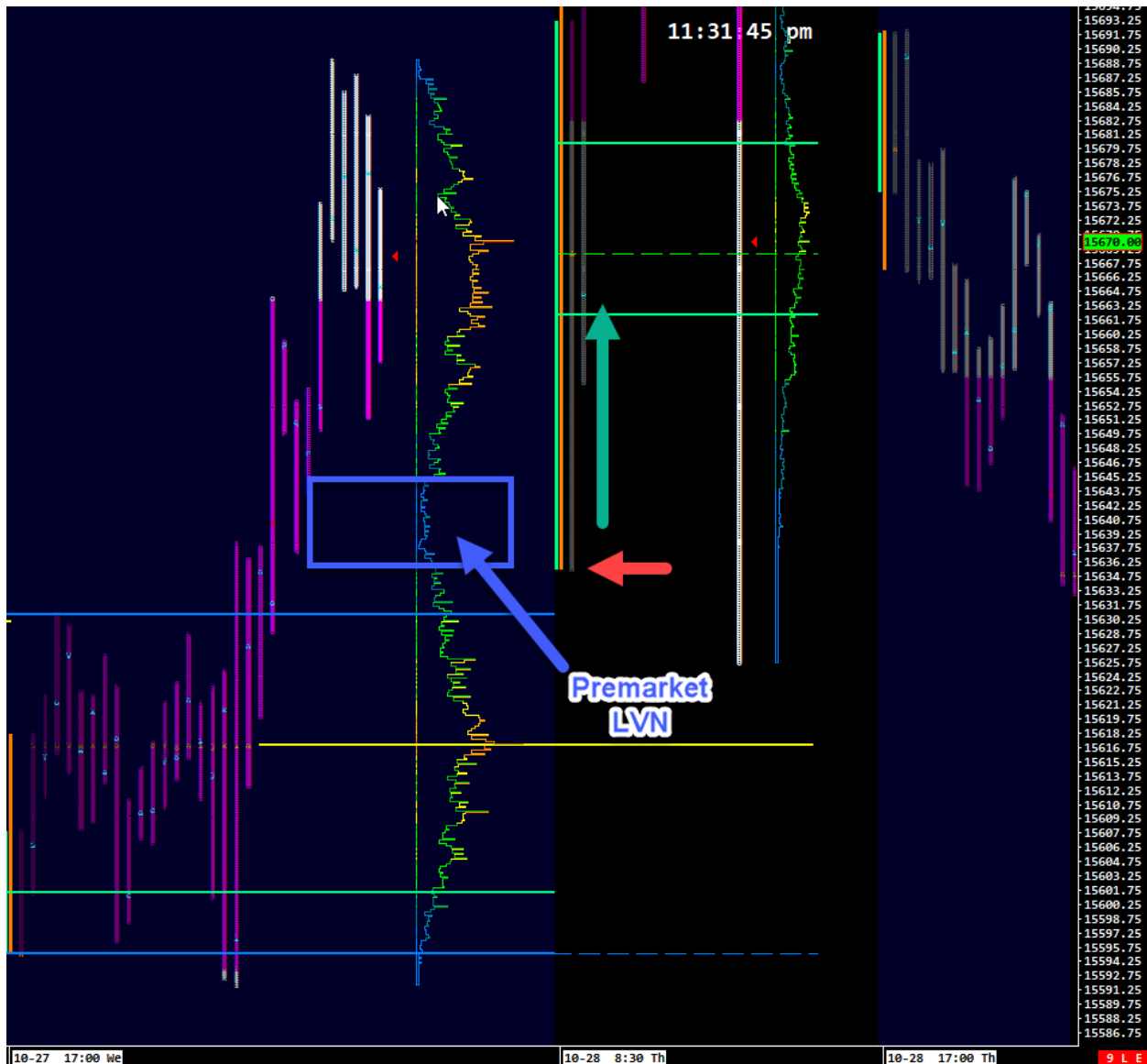
Define your workspace. We work on a screen that presents real-time market generated information in a graphical presentation for the sole purpose of making informed decisions. That's it. We do not trade here. The only reason to review this chart is to build our trading plan. Your workspace will be an extension of who you are as an individual Trader.

I have defined my workspace by constructing a 15 Minute chart with each bar represented by a VbP histogram. Then I hide the OHLC bars. Then step two is adding in the VbP study aligned to the right side of the chart. This should be set to show a VbP based on the bars on the chart. The image below is based on the ES, and I have identified POC, LVN and HVN areas. This is also done for the NQ but for this instructional series one chart can represent the market. The process is the same regardless of market.



Daily Prep Workspace (Action Plan) Market Profile

Market Profile charts are different in construction and essentially display almost identical to VbP. The operative word here is almost. Market Profile theory uses time as a standard with an attempt to define the POC based on the amount of time spent at a certain price. The MP POC can vary from VbP POC, sometimes by a substantial distance. Understand this variance, if you spend a lot of time at a certain price does not mean there was a lot of volume, The most thorough view is to display a VbP Study with the Market Profile. The LVN areas on the VbP study make excellent areas to watch for a retrace on a Market Profile chart as displayed below.



Daily Preparation: The Practical application of the Volume Profile and Market Profile Charts

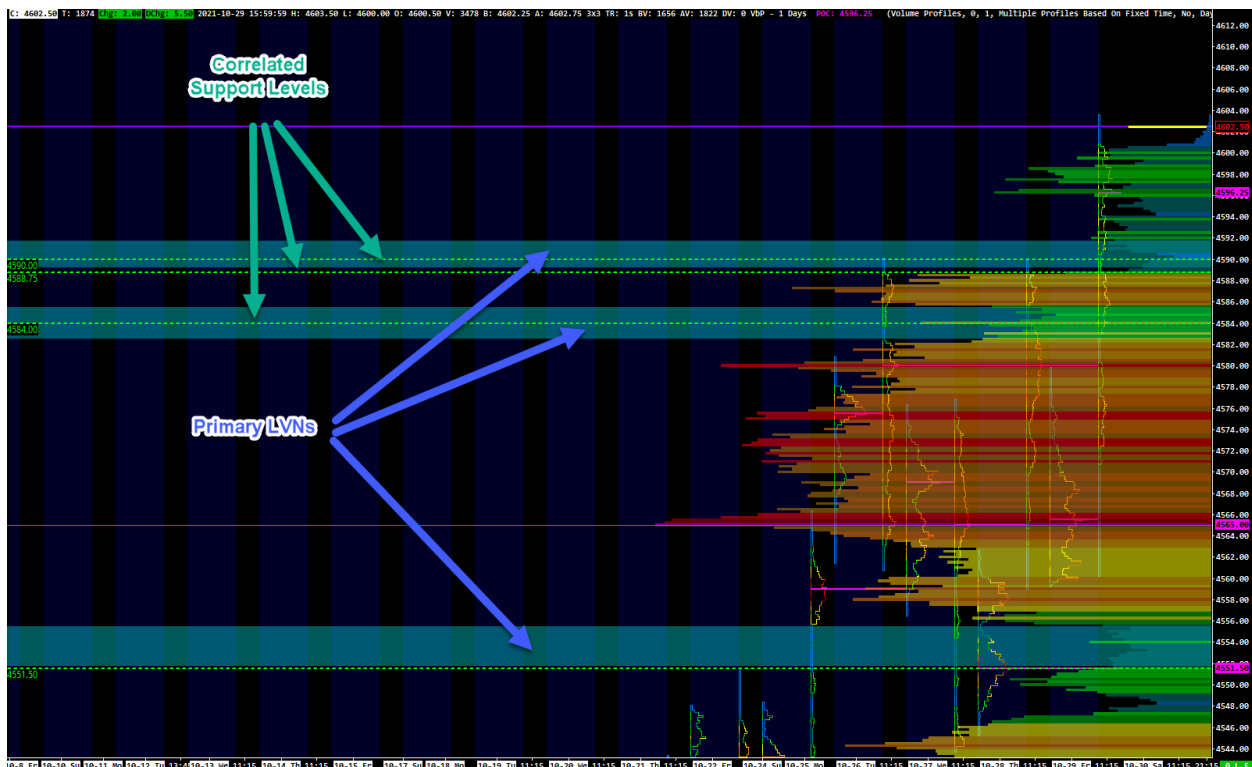
We do not know where the market will move. Up or down, driven by news, tweets, a catastrophic weather event or even perhaps political unrest. Planning your trading day stabilizes what is an otherwise chaotic environment. The two charts I have laid out for planning do not predict where the market will go, I do not predict direction. I lay out areas on charts based on (1) LVNs (2) POCs and last HVNs in that order. The greatest attention being paid to LVNs and POCs in that order.

Morning Prep:

Review and mark-up 15 Min VbP chart

Before the open review 15 Min VbP chart and insert a horizontal line at a LVN from the consolidated VbP display on the right. Review chart bars to the left looking for correlation of that LVN line to any significant chart event. What to look for is the art of trading and only by doing this every day, never fail, no exceptions will your selection skill improve. What are you looking for?

- I. LVN in a space where price action broke above or below a consolidation area
- II. LVN correlates to the LVN of 15 Min VbP
- III. Mark larger areas of lower volume troughs being careful to examine chart action that caused this occurrence
- IV. Have lines transferred to other working charts



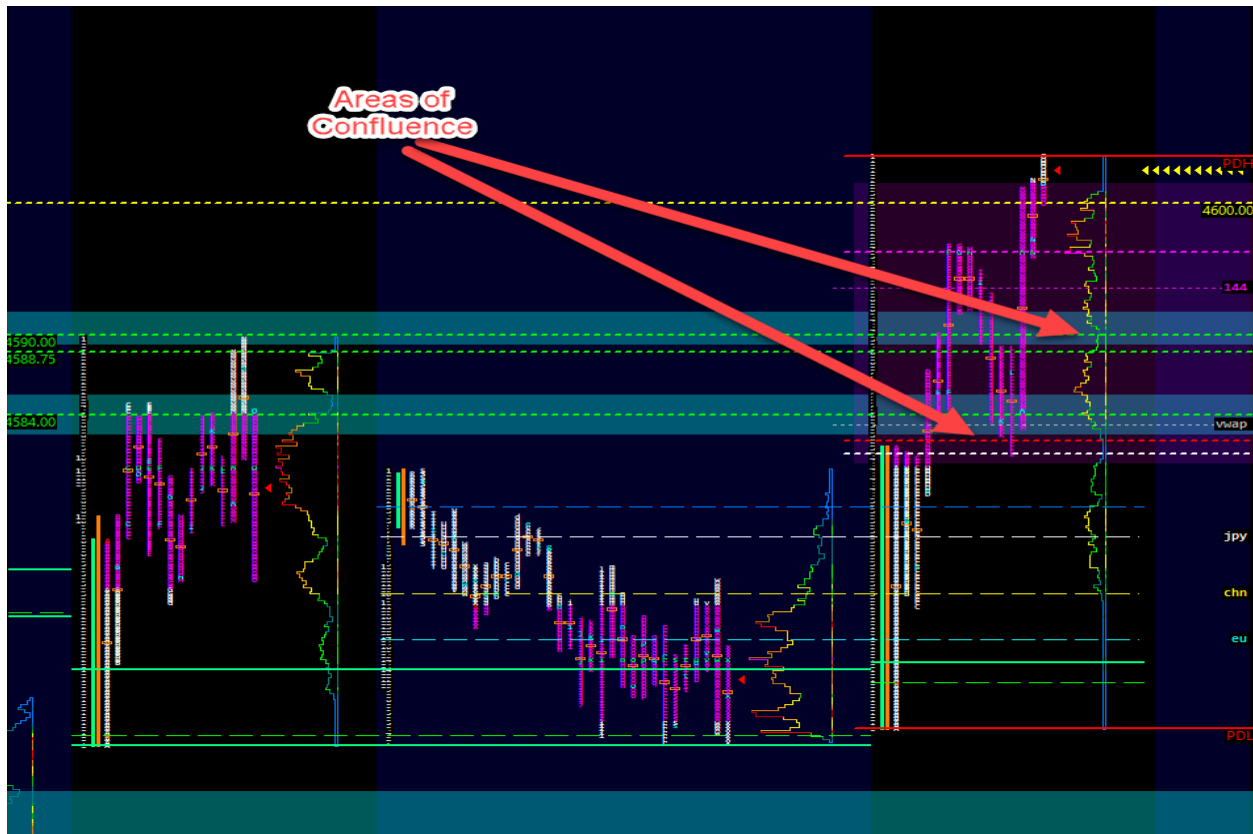
Review and mark-up Market Profile

Since the LVN Lines noted on the previous chart are automatically displayed on the Market Profile chart we can get a good visual of what happened in that space by time (Remember Market Profile theory is based on Time not Volume).

1. Make note of any areas of confluence
 - a. Are there any LVNs specifically through single print areas of the Market Profile?
 - b. Are any LVN lines closely correlated to the Market Profile POC?
 - c. Since there is a daily Volume Profile displayed with the Market Profile make note of previous VPOC (Volume Point of Control) above and below the current trading day. These (Naked, Open, Virgin) POCs often represent points of change.
2. Highlight the areas you feel have a high correlation between both charts.

Our study of previous market conditions is complete. This body of work has prepared our workspace to:

- I. Identify work zones that represent the greatest chance of change. LVNs and VPOCs
- II. Identify areas of HVNs that represent challenging trading conditions



Now you have seen how my screens look when my daily prep is completed. I have included notes in the chart for educational purpose only, they are not part of my regular prep. I have included a glossary of terms and acronyms last so you can print an individual page to better grasp this section.

Daily Prep Glossary

- I. Volume by Price Chart (VbP): A chart that's sole function is to display volume at price.
 - a. Looks horizontally at a chart calculating how many contracts have traded at that price.
 - b. Unique ability to illustrate very high-volume areas or very low-volume areas.
 - c. Referred to in this work as VbP. Industry terms associated are Profile or Volume Profile.
 - d. Displayed with filled volume bars.
 - e. May also be displayed as Hologram on lower time frame. Hologram only outlines the volume.
- II. Market Profile Chart (MP): A chart that breaks down price trading by time.
 - a. Primary function is to create a statisticians view to standardize price action by time.
 - b. Market Profile tabulates prices vertically on the screen with each displayed letter representing 30 minutes.
 - c. This is essentially a 30Min candlestick chart that looks at how much time has been spent in a particular zone.
 - d. Statistical measurements are used to define the area that contains 70% of trading TIME and is the TPO Value Area. In theory a statistical bell curve should be produced.
- III. Single Prints: You may hear me refer to Single Prints on the MP or VbP charts. This area defines rapid price change in a short period of time.
- IV. Low Volume Node (LVN): Referred to on a volume profile indicating low trading volume.
 - a. Do not confuse this term with market profiles single prints.
 - b. LNV is specific to volume profile.
- V. Point of Control (POC): Will be referred to on either market profile or volume profile charts.
 - a. On volume profile this represents the highest volume at price for that period.
 - b. On market profile this represents the most time spent at a price.
 - c. Volume POC may not be the same as the MP POC.
 - d. Acronyms can be VPOC and MPOC to refer to each.
- VI. High Volume Node (HVN): This refers to the volume profile chart display and defines areas of high volume.
 - a. Two-sided trade happens easily in this space.
 - b. It's hard to initiate a new trade in these areas as two-sided trading can move the price in wide ranges.

Footprint Charts

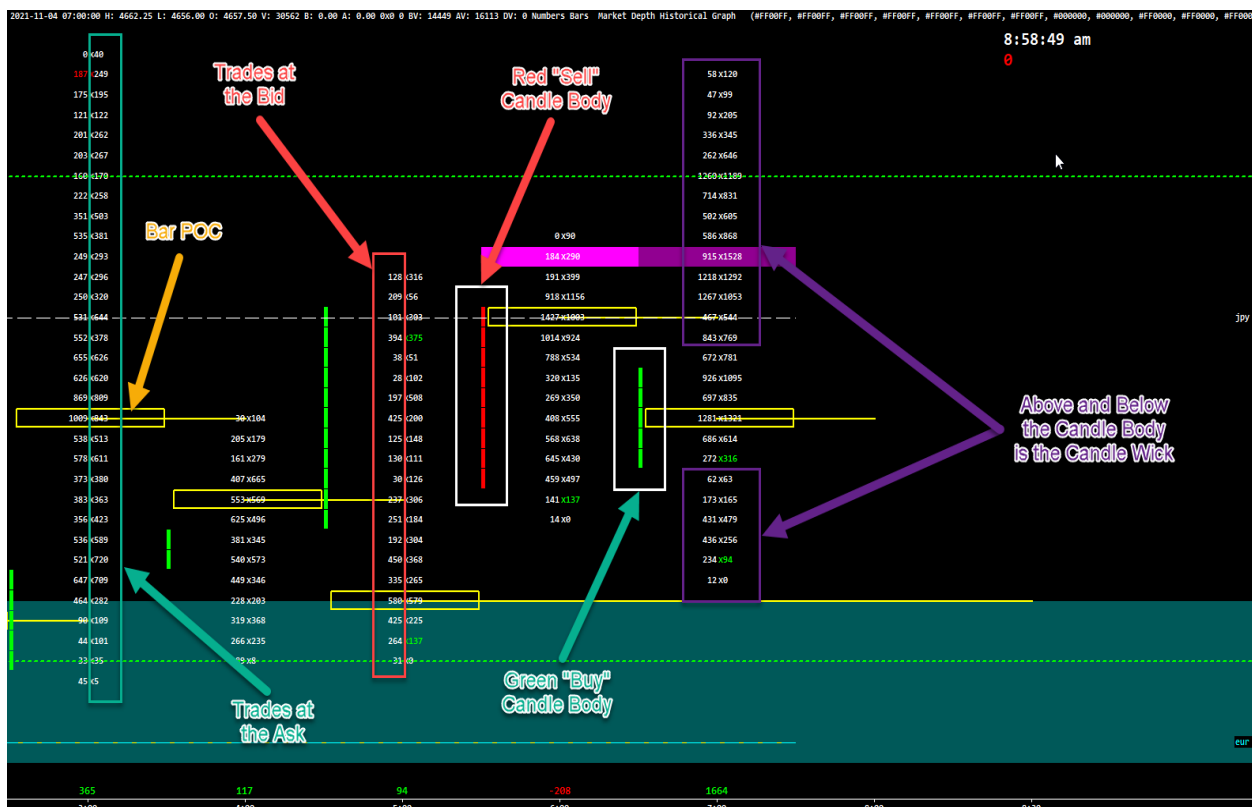
With five years of training Traders in The Pit Discord Group I estimate that 90% of the people have found a Footprint chart to be confusing and difficult to understand. Once understood most Traders have realized the value that a Footprint chart holds.

Footprint charts can also be called Numbers Bars or Delta Footprint Bars but for use in The Pit we will use the term Footprint. This style bar can be selected by time i.e., 60Min, 30Min and/or variants like 2500 contracts-volume per bar.

With our daily plan completed we start to step down our timeframe from longer daily charts to intraday timeframes. This is where I start to make trading execution decisions.

- Point to remember: The higher timeframe always takes priority. This is the sole reason our planning takes place on a longer timeframe.

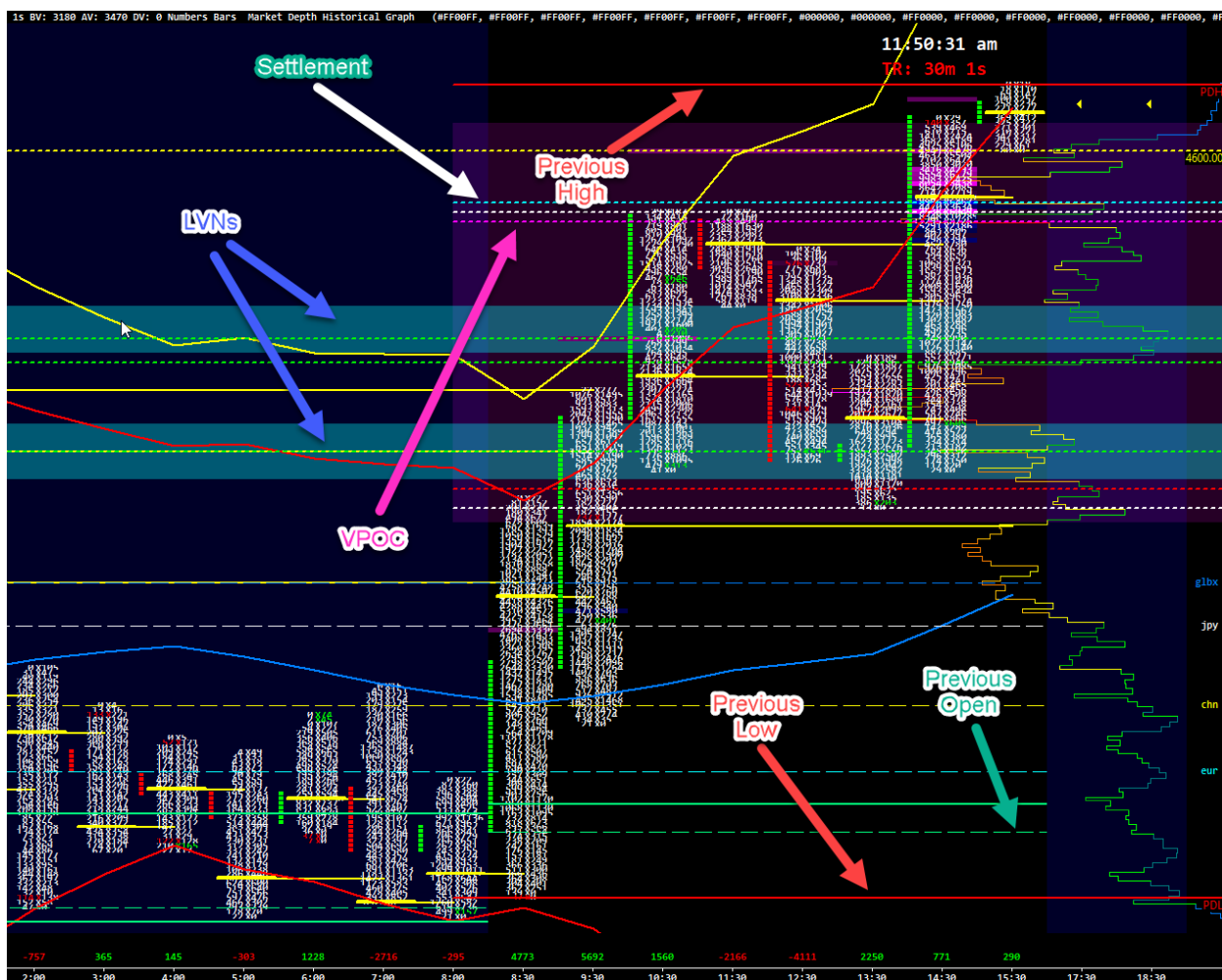
The chart below shows Footprint bars. The left side of the bar are trades that have occurred at the Bid and the right side shows trades at the Ask/ Offer.



Footprint Charts

I use a 60-minute Footprint chart and the previous page shows that chart. Now we want to add in our previous work from our daily planning. Sierra Chart can plot the lines noted in the VbP and MP charts. Now we add the previous day Open, High, Low, Close. Then add the current sessions Open from the GLOBEX session. All of this can be done automatically with Sierra Chart, but I manually place the Previous Day High, Low and Close as well as GLOBEX High and Low and the MP chart.

So, at this point we have built a 60Min chart displaying LVNs from the higher timeframe VbP chart, previous days OHLC and GLOBEX Open. That chart should like the one below.



➤ This is a compressed image so that I could get the important topics mentioned included.

Footprint Charts

To this point we have carried over LVNs from the VbP charts, areas from the previous trading day's OHLC and have been market out. The current evening session open is marked.

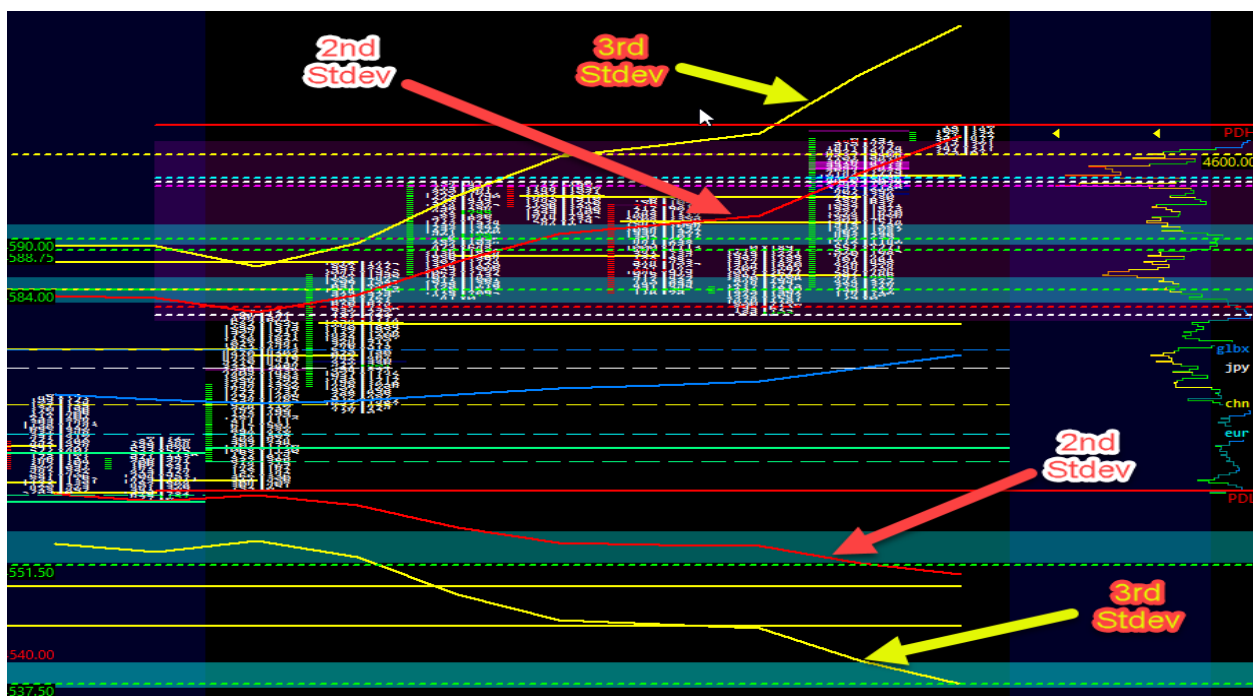
I now plot a VbP histogram for the current session on the 60Min Footprint chart. This is aligned to the right side. It is based on the current session and its being updated with every trade. Next, I will plot the Bollinger Band indicator on the Footprint. This is plotted based on a 20 period look back with the 2nd and 3rd Standard Deviation outer bands.

Points to be aware of:

- I. LVNs, previous OHLC and Evening Open are static reference points. We will lean on these for the first decision points to execution.
- II. Price, Bollinger Bands, and Session VbP are dynamic.

We discussed VbP at length previously and the same analysis applies to the VbP on the current 60Min Footprint chart. The focus needs to shift to Bollinger Bands. The Bollinger Bands plot out bands based on volatility of price action. Upper and Lower bands are 2 and 3 standard deviations from the average. The reference basically tells us that 95% of trading activity has occurred below the 2nd standard deviation and 97.5% beneath the 3rd standard deviation. The width of the bands will widen or narrow based on the volatility of price. The bands are a dynamic study.

To this point we have identified static areas and dynamic indicators. Our trade criteria should unfold along the lines of waiting for price to reach one of our static areas and being over extended based on Bollinger Band extremes.





Footprint Charts (Imbalances, Completed Auctions, Faded Volume and Poor Structure)

In review we have laid out a Footprint chart that defines our static reference points and dynamic references to base trade criteria on. We need to move into the content of the individual bar and must grasp a complete understanding of what's happening. Let's dissect that and review each piece to make our understanding second nature.

- Remember: This is a dynamic environment, so a complete understanding here is essential to proficiency in trading.

I have broken down the Footprint into four pieces that can be seen in each bar. It is enormously important to understand that in each bar, the numbers you see, are the actual buy and sell orders that executed at that price. These are Real-Time, now as they happen, subsequently I have broken down transactions in to four critical categories.

- I. Buying Imbalance / Selling Imbalance
- II. Completed Auctions / Unfinished Business
- III. Faded Volume
- IV. Poor Structure

Order flow by its very name is simply orders flowing into the market no matter a buy or sell order. However, the understanding of how these orders have been expressed in price action comes down to the four categories above.

So, let's be very clear. Price trades in this direction where an aggressive Buyer must pay the asking price and aggressive Seller must sell at the bid or price does not move. In this example, if an aggressive Buyer comes in and buys 110 contracts at 2994.50 price will move up to 2994.75, They just took everything the market offered at 2994.50 and then 10 contracts from the price above. This buyer just left an imbalance on the footprint. While this is an extremely simple example it's important to understand that because the price moved through 2994.50 swiftly little or nothing was sold at the bid on 2994.50 and the price is currently offered at 2994.75.

Price	Bid	Ask / Offer
2995.00		100
2994.75		100 90
2994.50		100
2994.25	100	
2994.00	100	

Handwritten annotations: A green arrow points from the Bid column to the Ask/Offer column at the 2994.50 price level, with '+110' written above it. The '100' in the Ask/Offer column at 2994.50 is crossed out with a red line, and '90' is written next to it.

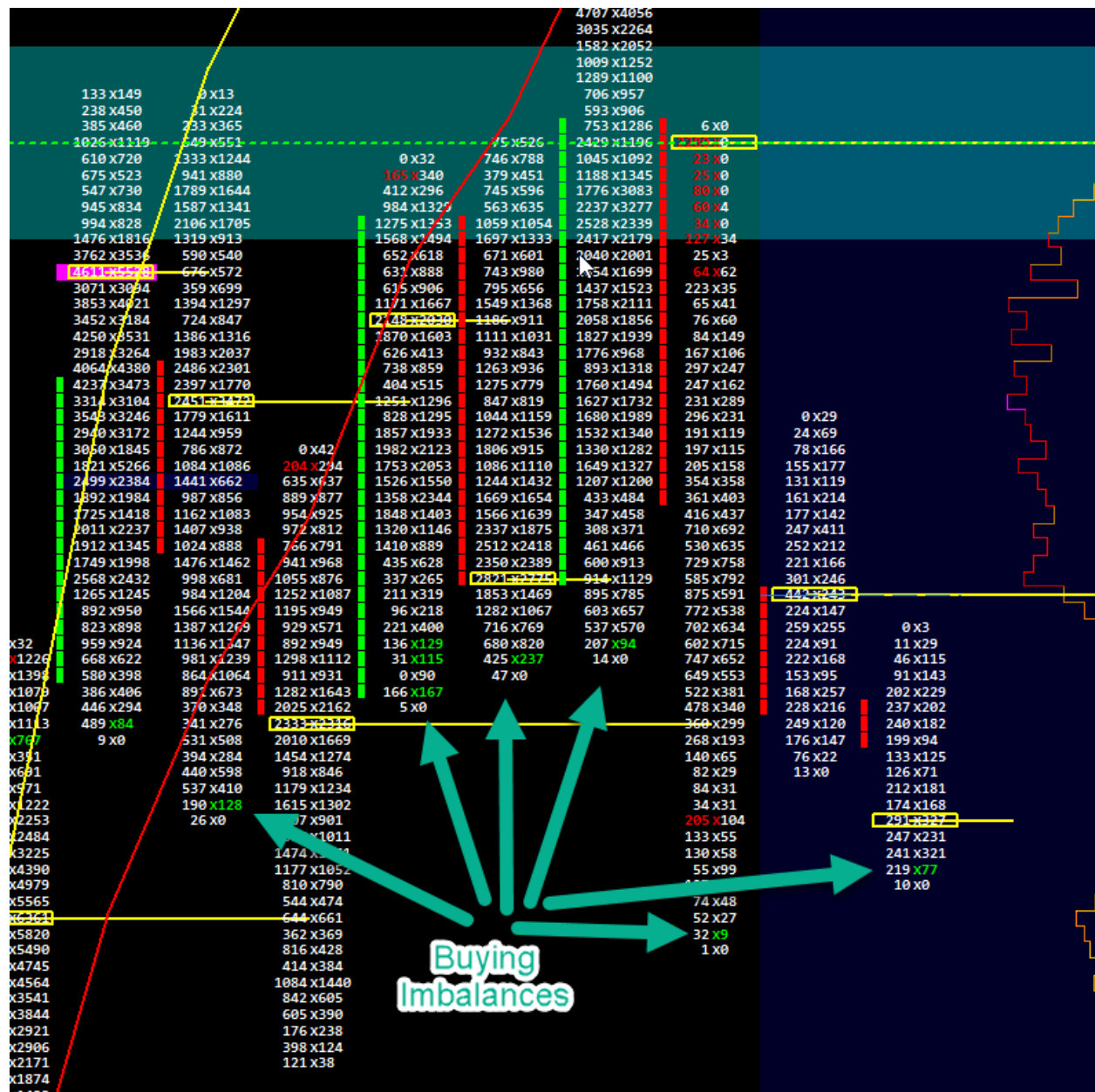
This will happen on the Sell side as well. No matter the side, buy or sell, they can be swift, sometimes violent but always leave a distinct mark in the footprint.

I have provided examples of buy imbalances and selling imbalances on the next page.

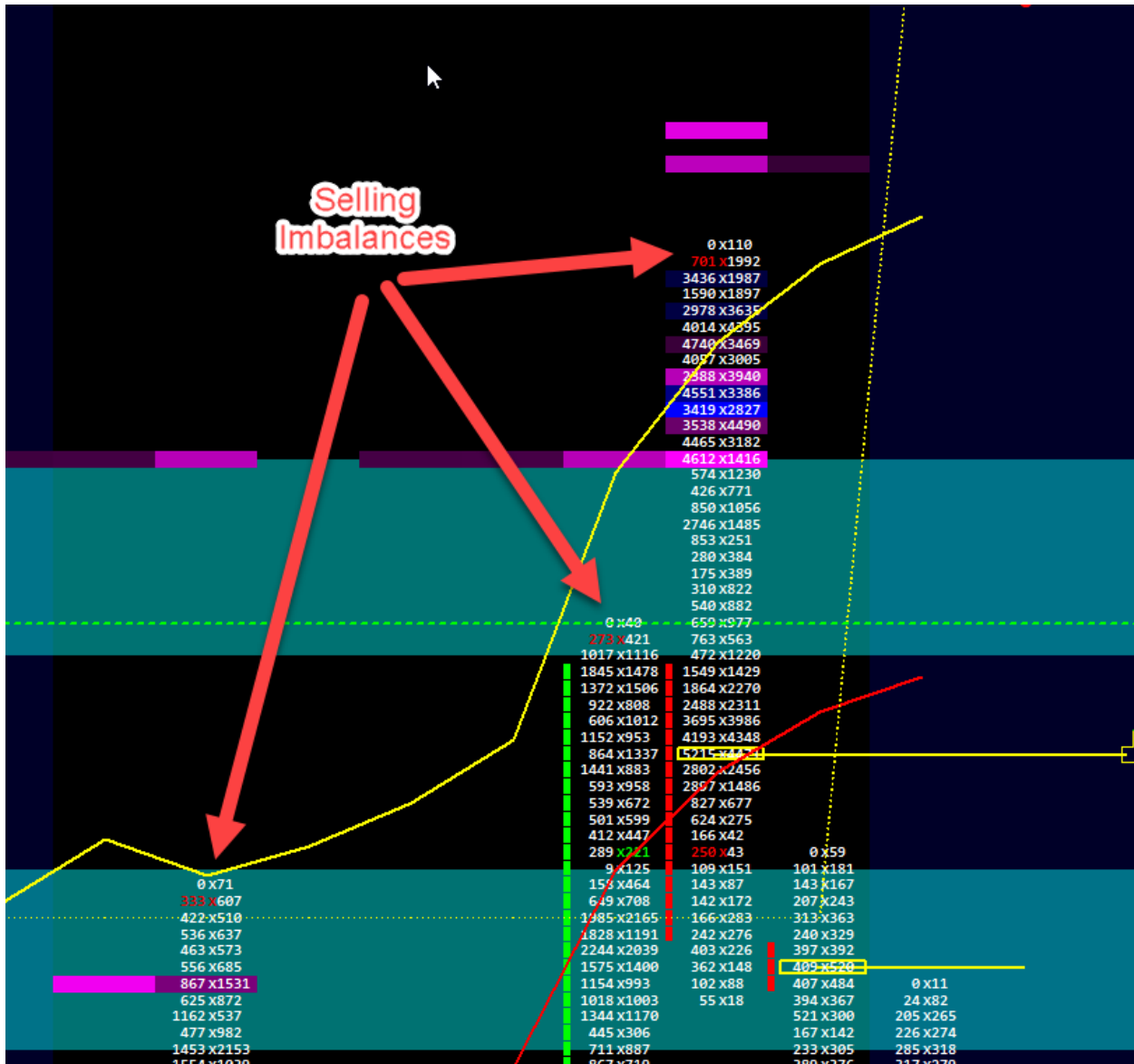
Footprint Charts (Buy and Sell Imbalances)

Imbalances are based on a percentage variance from the opposite side of the price structure. If buying is 400% greater than selling, we have a buying imbalance. Conversely, if selling is 400% greater than buying, we have a selling imbalance. The percentage you choose is a personal decision however, I have found 400% to be an optimal setting. Do not get caught up in the size of the order, our interest is the structural deviation of 400%. These can be present in the middle of a bar and can be used as markers for support intra-day if there is a pull back. You can also see the top of most bars has a selling imbalance and the bottom of most bars have a buying imbalance.

Buying Imbalances



Selling Imbalances



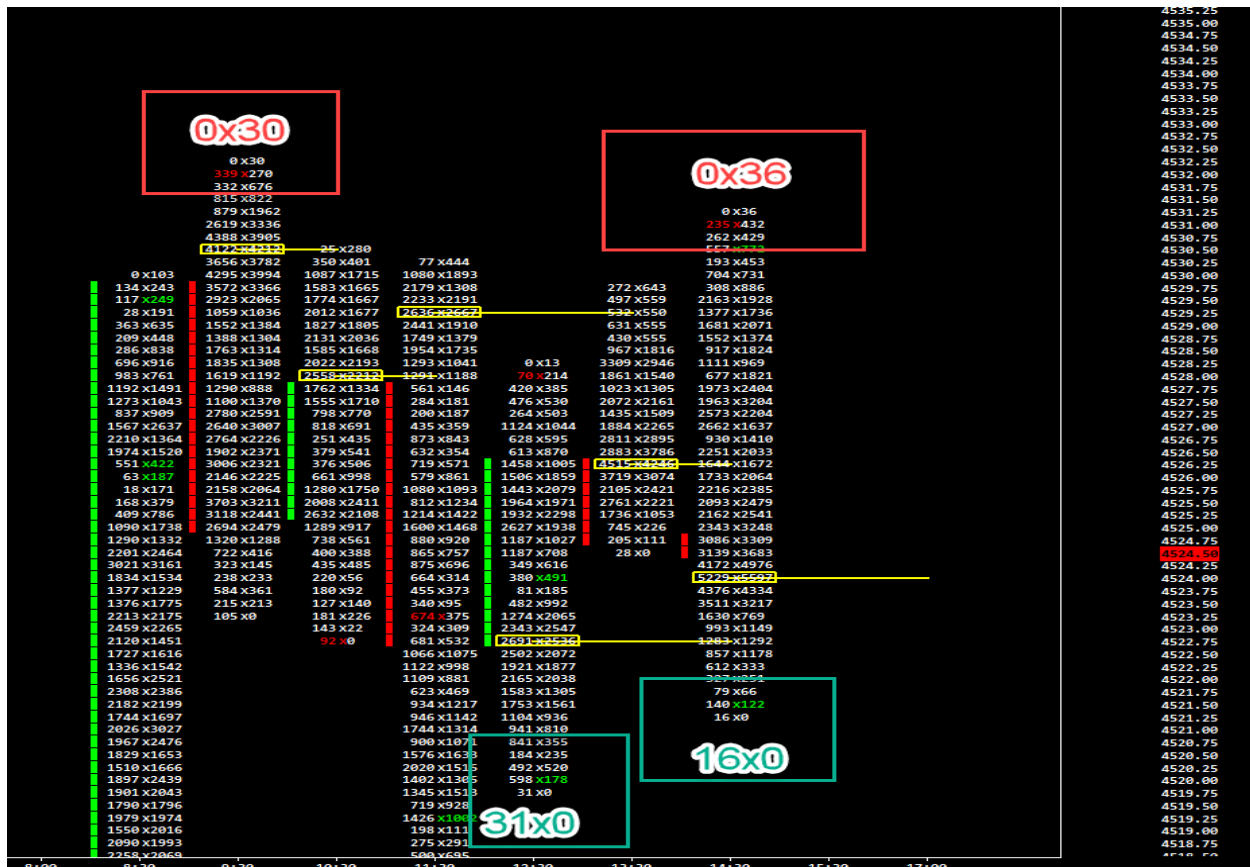
Footprint Charts (Completed Auctions)

Technically we could make the argument that any auction that moves from one price to another price has basically completed the auction at that price. That's technical, we must examine how the trade unfolds.

- Remember: Price moves when an aggressive Traders absorb all available passive orders sitting at the Bid or Ask in the order book.
- Aggressive Buyers must buy into all orders that are sitting on the ASK price from passive selling Traders for price to move up.
- Aggressive Sellers must sell into all orders that are sitting on the Bid from passive Buyers for price to move down.

The Footprint chart below shows examples where aggressive Buyers stopped buying at the higher ask price and aggressive Sellers stopped selling the lower bid price. Essentially price could not move up to extend buying or down to extend selling. We refer to this specific signal as a completed auction.

- Note its an anomaly that may signal a point of change or a breather for aggressive Traders to reevaluate their positions.
- This Order Flow presented to us Traders in The Pit must be coupled with the other conditions I have built prior to this.



The Footprint indicates an auction is completed when there is a 0 x or x 0 at the high or low of your Footprint Bar.

On the top of the bars, you see the 0 X 30 and 0 X 36. This is indicating that there are not enough aggressive Buyers to move price up. Therefore, strong aggressive Sellers are coming in on the Bid below. This is being expressed as an imbalance. My software turns this Bid Trade red indicating a Selling Imbalance of at least 400% is in progress.

On the bottom of the bars, you see the 31 X 0 and 16 X 0. This is indicating that there are not enough aggressive sellers to move price down. Therefore, strong aggressive Buyers are coming in on the Offer above. This is being expressed as an imbalance. My software turns this trade at the Ask green indicating a Buying Imbalance of at least 400% is in progress.

- Note these are excellent indicators of a reversal in price action, and they are an excellent way of managing risk. However, they do not always hold and if the price is ripping one direction or the other, they can form in the middle of a bar as poor structure.

The best way I have learned to use Completed Auctions is when it is paired with either Faded Volume or an Imbalance or both.

Footprint Charts (Unfinished Auctions / Business)

In the previous section on completed auctions the discussion centered on how a completed auction is displayed on the chart. Here I will dissect what happens when we are given signals that a viable auction is still in process. Two-sided trade happens when we have aggressive Buyers lifting the Offer / Ask and aggressive Sellers hitting the Bid. This means there is two-sided action happening at the high or low of a chart bar.

When both side of the Footprint (Bid / Offer) have trades that occurred at the High or Low of a bar we view this as Unfinished Business.

- Note to remember. We are evaluating these conditions on a 60Min chart.
- Theory: If active two-sided trade is occurring at the chart bars top or bottom, we can assume the market will return to this price.
- This Unfinished Business becomes a target for our trade.
- Review the chart below to become familiar with these phenomena.

Footprint Charts (Poor Structure)

This section will unfold with a much deeper discussion of Order Flow structure. We covered “structure” earlier in this document and I would like to refresh some of the points covered.

Let’s first understand that Structure is defined as:

- I. The way something is built, arranged, or organized
- II. The way that a group of people are organized
- III. Something (such as a house, tower, bridge, etc.) that is built by putting parts together and that usually stands on its own.

So, if we apply the above definition of “structure” to trading we can see:

- (2) The market is comprised of Traders and how they have (1) organized their trades will allow the market to (3) support further moves or if market structure is weak a move will not be supported.

Everything I have expressed to this point is on structure.

- I. Our daily preparation is designed to identify very strong supportive structure (POC)
- II. Our daily preparation is also designed to identify weaker areas of structure where Traders were overtaken (LVN)
 - a. Note: The structure is weak not the trade. One side has aggressively overtaken the other.
- III. Then there is indeterminant structure in (HVN) areas where we do not know who will be stronger but:
 - a. From a LVN perspective whoever, Buyer or Seller, aggressively overtook the other now has control.
 - b. From a POC perspective trading above the POC indicates Buyers are in control. Vice versa, trading below a POC means Sellers are in control.

Webster defines “context” as: The situation in which something happens: the group of conditions that exist where and when something happens

The structure of the market defines the context. Say that again. The structure of the market defines the context. OR we can say that the market context is being defined by its current structure.

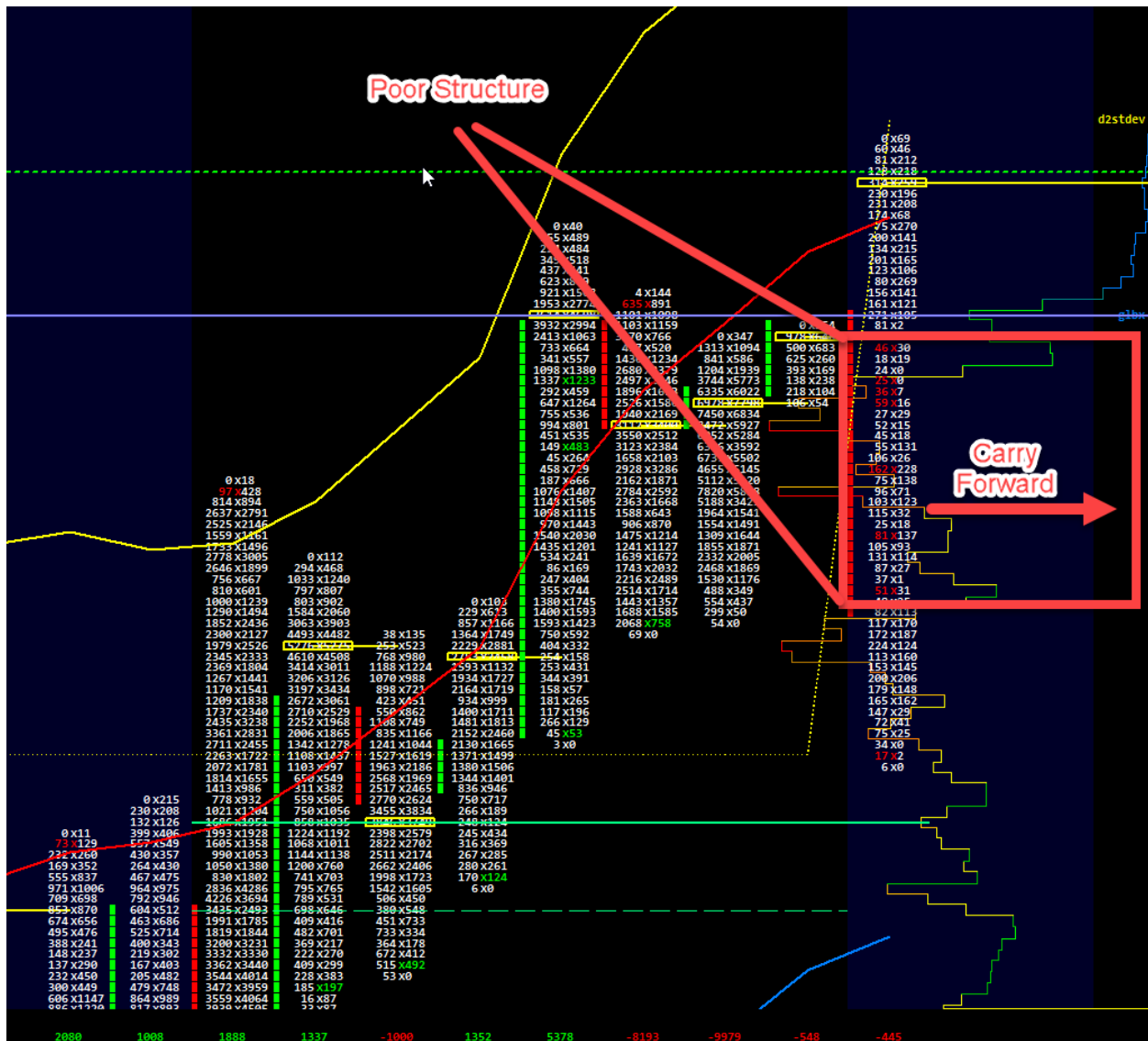
Since we now have a clear understanding of structure, I will now shrink down my structural review to my 60Min Footprint chart. This section encompasses different structural patterns and will be lengthy in explanation.

Footprint Charts (Poor Structure cont.)

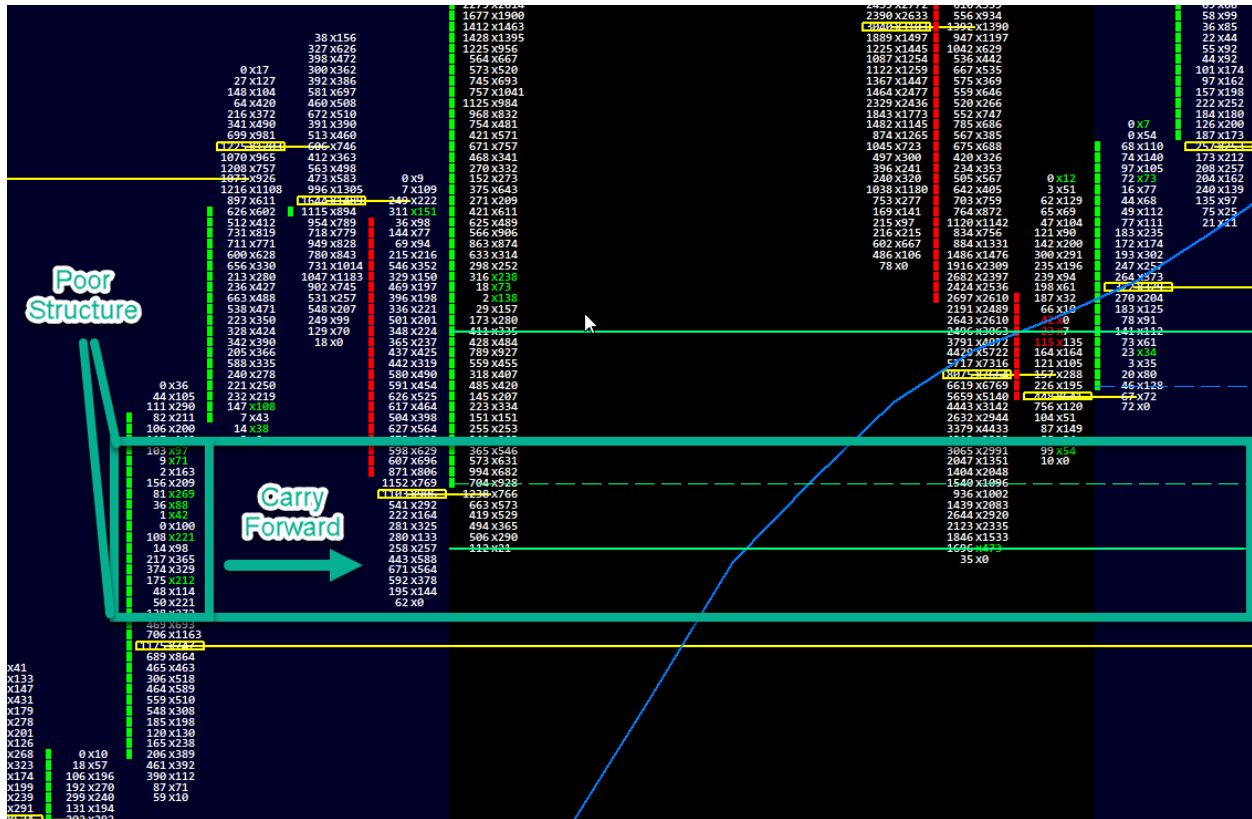
We have shown that poor structure occurs when the market moves rapidly through one or more price levels. This can be seen on VbP displayed as LVNs and this can be seen on our 60Min Footprint chart. The chart below distinctly shows a moment in time where price action was rapid and swiftly moved price through multiple levels. This movement defines a structural change in the market and essentially the context changed from supporting to selling. So, let's look at this chart and carry our area of poor structure to the right edge. We now have real time work zone. When price enters this zone, we know two things:

- I. Sellers took control
- II. Buyers will be very cautious

Now add back in the "completed auction" order flow technique and we have a developing work zone that offers opportunity.



Footprint Charts (Poor Structure cont.)



Footprint (Faded Volume)

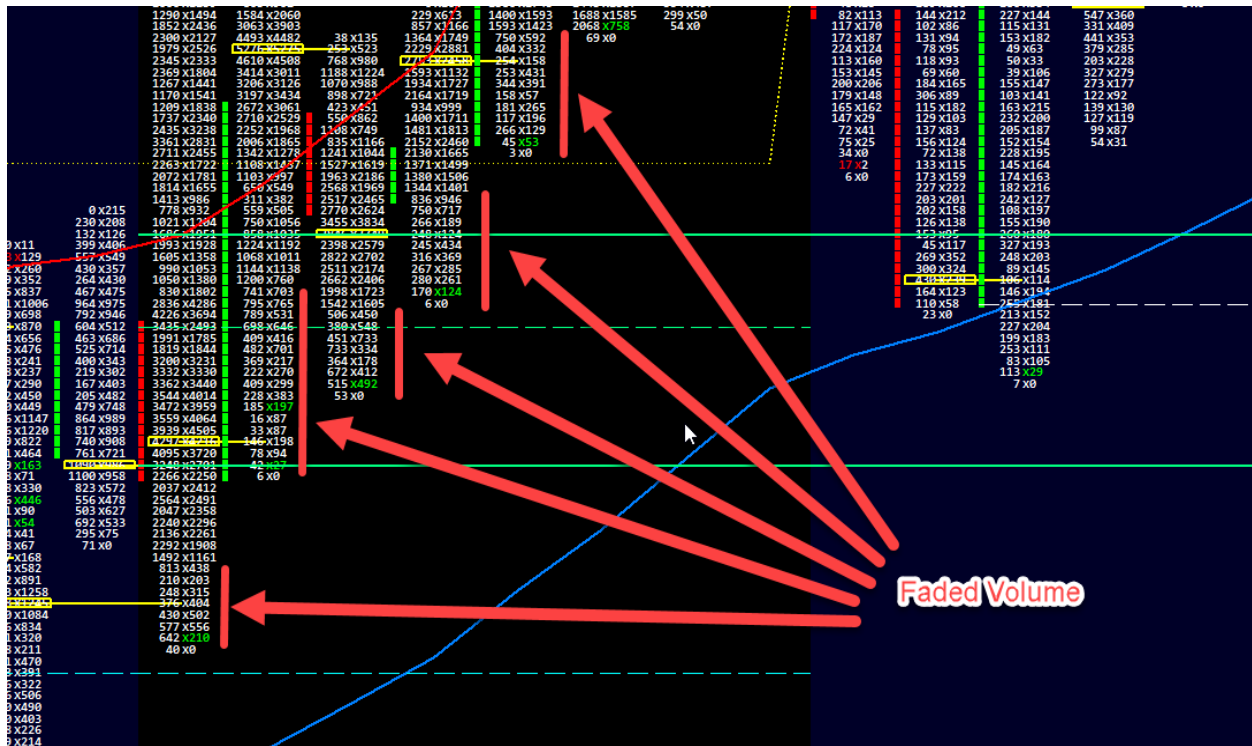
Footprint charts offer significant opportunity over other chart styles simply due to being able to witness trading volume at a specific price point. They also offer disadvantages that are not immediately realized. The S&P500 has significant volume that can be easily read to identify good structural patterns, other markets not so easy. Markets with thinner volume may display structural anomalies that impede an accurate assessment. We can view this from the perspective:

- I. Structural patterns diminish with low volume markets
- II. Structural patterns in high volume markets will diminish with shorter duration charts
 - a. Moving from a S&P 60 min chart to a 5 min chart will yield a different structural representation.
- III. The inverse is true
 - a. Moving low volume markets to a higher time frame chart can yield more consistent structure patterns.

Moral of the story here, pick your chart and stay with it.

This is critical to understand when it comes to faded volume. The chart below of the 60Min S&P shows volume fading or waning as the chart moves lower and finally resolves with a completed auction.

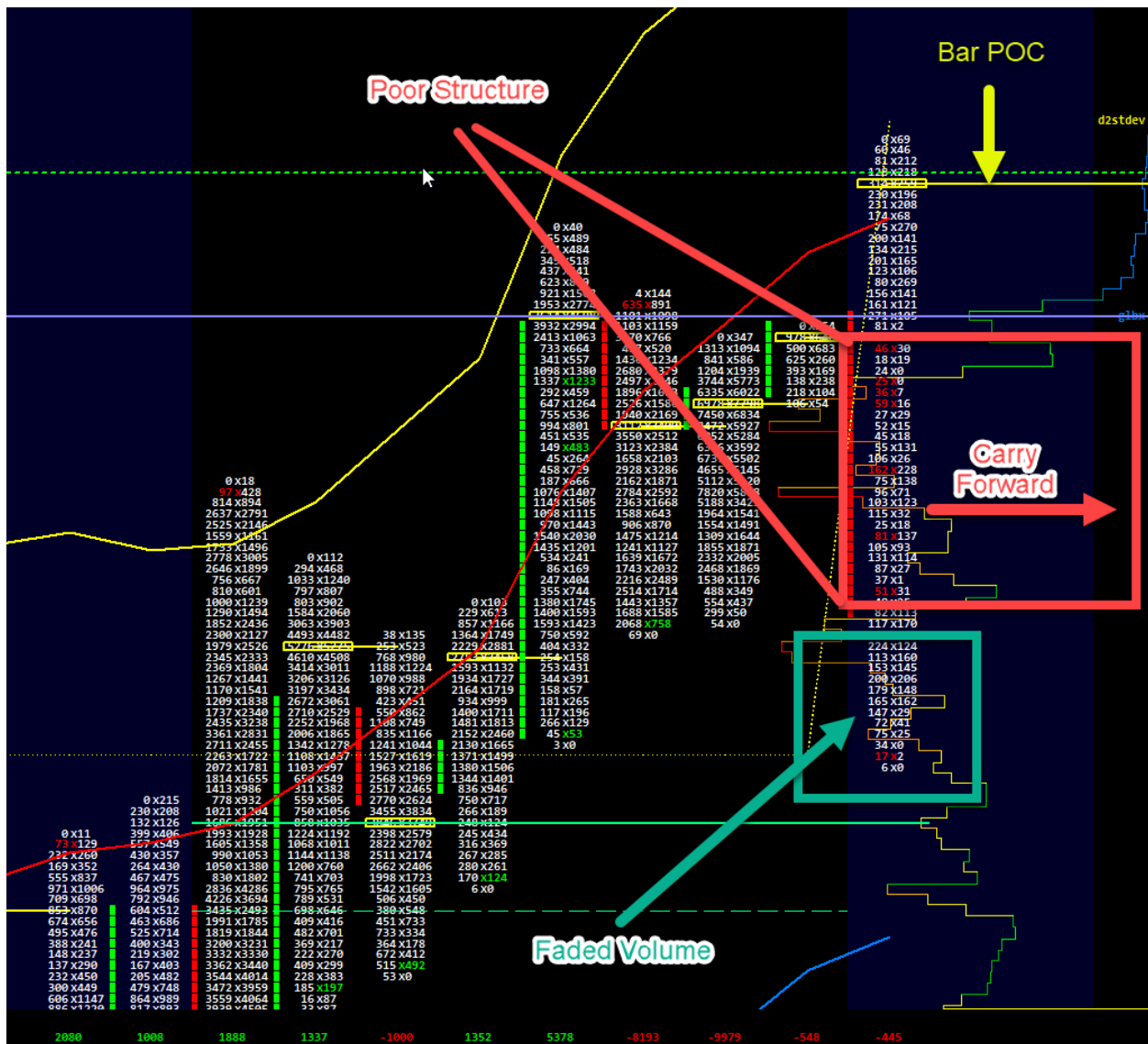
- Note: the term fade can represent going against i.e.: Trader A is buying the market and I faded his trades. In this example “fading” defines less volume or waning volume.



Footprint Chart (The Bar POC)

It doesn't matter! 1 minute, 1 hour, 1 day, 1 week, 1 month... they all have a point of control (POC) and they are all at different prices. The point here is that as you work up to a higher time frame the POC has larger volume above and below it. The lower the time frame the weaker the POC. The higher the time frame the stronger the POC. This must be clearly understood because we will be leaning on the POC to identify trade location and potential execution. The chart below is the same chart I illustrated in the poor structure section, so adding the order flow pieces into this chart we can see the real value of Footprint charts.

- I. The poor structure is identified by the rectangular area.
- II. Faded volume starts to identify where completed auctions may develop
- III. The Bar POC identifies areas of support / resistance



Time and Sales (The Tape)

Tape reading is the oldest form of analysis and can even be read about in *Reminiscences of a Stock Operator*. One Hundred years later computers have made tape reading an elegant and essentially easy process. Truth be told I don't read the tape. I have set Sierra Chart to identify the specific conditions I would look for and alert me when those conditions happen. The Sierra Chart software will color certain conditions for a visual alert and sound an audible alarm for a different set of conditions. Different volume filters are used for the ES and NQ, and I will include my specific volume filter settings at the end of this section.

Here is what I am looking for on the Tape based on my settings for the ES and NQ

- Blue on The Tape
- Yellow on The Tape
- Highlighted Deep Green
- Highlighted Deep Red
- Red / Green

Blue on the Tape

Blue on the tape indicates aggressive Selling.

In this example you have heavy selling, red orders, and then a large wash of blue. This indicates a large Buyer covering. Technically they are selling below the current Bid. So, they are taking everything at the current Bid and whatever necessary below to get out.

Understanding Blue on the Tape

It is not necessary to see the exact size of Trades going through the tape. What is necessary is to understand what is happening at a high level. The way my tape is setup lets me know what is happening without really having to pay attention.

- If I am long and I see blue and red on the tape I can infer long positions are aggressively exiting, therefore I should probably consider exiting as well.
- If I am short and I see blue and red on the tape I can infer longs are aggressively getting out and my position is probably good.

As mentioned before, I never have to pay attention to the tape. I see it out of the corner of my eye or hear it. This allows me to pay attention to my execution charts.

09:22:00	4574.50	9
09:22:00	4574.50	15
09:21:59	4574.75	6
09:21:59	4574.75	11
09:21:59	4574.75	5
09:21:59	4574.75	20
09:21:59	4574.75	5
09:21:58	4574.75	9
09:21:58	4574.75	5
09:21:58	4574.75	6
09:21:58	4574.75	5
09:21:58	4574.75	5
09:21:58	4574.75	5
09:21:58	4574.75	6
09:21:58	4574.75	5
09:21:58	4574.50	6
09:21:58	4574.50	13
09:21:58	4574.00	14
09:21:58	4574.25	9
09:21:58	4574.25	6
09:21:58	4574.25	14
09:21:58	4574.25	6
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09:21:58	4574.25	6
09:21:58	4574.25	5
09:21:58	4574.25	5
09:21:58	4574.25	5
09:21:58	4574.50	5
09:21:58	4574.50	9
09:21:58	4574.50	5
09:21:58	4574.50	6
09:21:58	4574.50	5
09:21:58	4574.50	5
09:21:58	4574.50	5
09:21:58	4574.75	5
09:21:58	4574.75	9
09:21:58	4574.75	5
09:21:57	4574.75	5
09:21:55	4575.25	10
09:21:55	4575.25	5
09:21:55	4575.25	9
09:21:54	4575.25	5
09:21:54	4575.25	10
09:21:53	4575.00	7
09:21:53	4575.00	8
09:21:53	4575.00	9
09:21:52	4575.25	12
09:21:52	4575.25	5
09:21:52	4575.25	10
09:21:49	4575.50	14
09:21:49	4575.50	5

Yellow on the Tape

Yellow on the Tape indicates aggressive Buying.

In this example you have heavy buying, green orders, and then a large wash of yellow. This shows a large Seller covering. Technically they are buying above the current Ask. So, they are taking everything at the current Ask and whatever necessary above to get out of their Short position.

Understanding Yellow on the Tape

It is not necessary to see the exact size of Trades going through the tape. What is necessary is to understand what is happening at a high level. The way my tape is setup lets me know what is happening without really having to pay attention.

- If I am long and the tape is screaming green and yellow then I can infer short positions are aggressively covering and I am likely in a good position.
- If I am short and I see yellow and green on the tape then I can infer shorts are aggressively covering and I should probably consider covering my position as well.

As mentioned before, I never have to pay attention to the tape. I see it out of the corner of my eye or hear it. This allows me to pay attention to my execution charts.

09:20:50	4576.75	11
09:20:50	4576.75	5
09:20:48	4576.75	6
09:20:48	4576.75	5
09:20:48	4576.75	7
09:20:48	4576.50	5
09:20:48	4576.75	8
09:20:48	4576.75	5
09:20:48	4576.75	10
09:20:48	4576.75	5
09:20:48	4576.75	11
09:20:48	4576.75	5
09:20:48	4576.75	5
09:20:48	4576.50	5
09:20:48	4576.50	7
09:20:48	4576.50	7
09:20:48	4576.50	10
09:20:48	4576.50	5
09:20:46	4576.25	9
09:20:46	4576.25	8
09:20:46	4576.25	5
09:20:46	4576.25	10
09:20:46	4576.25	11
09:20:46	4576.25	15
09:20:46	4576.25	6
09:20:46	4576.25	6
09:20:46	4576.25	6
09:20:45	4576.50	5
09:20:45	4576.50	5
09:20:45	4576.50	10
09:20:45	4576.50	5
09:20:45	4576.50	5
09:20:45	4576.25	5
09:20:45	4576.25	6
09:20:45	4576.25	7
09:20:45	4576.25	6
09:20:45	4576.25	5
09:20:45	4576.00	10
09:20:45	4575.75	5
09:20:45	4575.75	7
09:20:45	4575.75	22
09:20:45	4575.75	5
09:20:42	4575.75	7
09:20:40	4575.50	11
09:20:40	4575.50	5
09:20:37	4575.50	10
09:20:37	4575.50	8
09:20:36	4575.25	5
09:20:36	4575.25	7
09:20:36	4575.25	18
09:20:36	4575.25	8

Highlighted Deep Green

On the Time and Sales, you have the option to highlight orders greater than or equal to whatever you prefer. I prefer anything 100 lots or greater on the ES and 20 lots or greater on the NQ. In this example you can see someone took 127 off the Ask.

09:35:25	4573.00	5
09:35:25	4573.00	7
09:35:25	4573.00	13
09:35:25	4573.00	6
09:35:22	4572.75	5
09:35:22	4572.75	6
09:35:22	4572.50	11
09:35:21	4572.75	5
09:35:21	4572.75	127
09:35:21	4572.75	9
09:35:21	4572.75	21
09:35:21	4572.75	14
09:35:21	4572.75	50
09:35:21	4572.75	49
09:35:21	4572.75	9
09:35:19	4572.50	5

Highlighted Deep Red

The exact opposite of the above example, deep red highlight indicates a large order taken off the Bid. Here in this example you can see 27 taken off the Bid.

09:55:15	15685.00	3
09:55:11	15684.75	2
09:55:11	15684.25	2
09:55:11	15684.00	4
09:55:11	15684.00	2
09:55:11	15685.00	3
09:55:11	15685.00	2
09:55:11	15685.00	27
09:55:09	15686.00	2
09:55:07	15684.75	2
09:55:06	15685.00	2
09:55:06	15685.25	3
09:55:05	15685.50	2
09:55:04	15685.00	3
09:55:04	15685.00	2
09:55:04	15685.00	2

Red and Green

Pretty simple. Buying and Selling. I filter mine to be 5 or greater on the ES and 2 or greater on the NQ. Anything lower is too much noise.

ES Tape Settings

Time and Sales Settings

Combine Records: **Do Not Combine**

Show Bid And Ask Records
 Show Gridlines
 Show Title Bar
 Include Milliseconds and Microseconds in Time

Columns:

Date
 Time
 Price
 Volume
 NumTrades
 Type
 Bid
 BidSize
 Ask
 AskSize

Highlight & Alert:

By Field: **Volume** Condition: **>=** Value: **100**

Color Row

Bid Trade Alert: **Alert21**

Ask Trade Alert: **Alert20**

Input Filtering:

Volume >= **5** (min) Price >= (min)

Volume <= (max) Price <= (max)

Ask Size >= (min) Bid Size >= (min)

Ask Size <= (max) Bid Size <= (max)

Combined Filtering:

Volume >= (min) Trades >= (min)

Volume <= (max) Trades <= (max)

OK Cancel Apply

09:31:07	15675.50	2
09:31:06	15676.00	2
09:31:05	15676.25	2
09:31:03	15676.25	2
09:31:03	15676.25	2
09:31:00	15675.00	2
09:30:58	15676.00	2
09:30:55	15674.00	2
09:30:55	15674.25	2
09:30:54	15674.50	5
09:30:54	15674.50	2
09:30:54	15675.50	11
09:30:54	15675.50	5
09:30:54	15675.50	3
09:30:54	15675.50	3
09:30:51	15675.00	3
09:30:51	15675.00	8
09:30:51	15675.00	4
09:30:51	15675.00	4
09:30:51	15675.00	2
09:30:51	15675.00	2
09:30:51	15674.75	2
09:30:50	15674.75	2
09:30:50	15675.00	4
09:30:50	15675.00	2
09:30:49	15676.00	8
09:30:49	15676.00	2
09:30:49	15676.00	4
09:30:49	15676.00	4
09:30:49	15675.00	2
09:30:47	15673.25	2
09:30:45	15673.00	2
09:30:44	15672.75	2
09:30:43	15673.00	2
09:30:43	15673.00	2
09:30:42	15672.00	6
09:30:42	15672.25	2
09:30:41	15672.50	2
09:30:40	15672.50	2
09:30:40	15672.75	2
09:30:39	15671.25	2
09:30:39	15669.75	5
09:30:39	15669.75	8
09:30:39	15669.75	2
09:30:39	15669.75	2
09:30:39	15669.75	4
09:30:39	15670.00	2
09:30:39	15670.00	2
09:30:39	15670.00	2
09:30:39	15670.00	2

NQ Tape Settings

Time and Sales Settings

Combine Records: **Do Not Combine**

Show Bid And Ask Records
 Show Gridlines
 Show Title Bar
 Include Milliseconds and Microseconds in Time

Columns:

Date
 Time
 Price
 Volume
 NumTrades
 Type
 Bid
 BidSize
 Ask
 AskSize

Highlight & Alert:

By Field: **Volume** Condition: **>=** Value: **20**

Color Row

Bid Trade Alert: **Alert 1**

Ask Trade Alert: **Alert 2**

Input Filtering:

Volume >= **2** (min) Price >= (min)

Volume <= (max) Price <= (max)

Ask Size >= (min) Bid Size >= (min)

Ask Size <= (max) Bid Size <= (max)

Combined Filtering:

Volume >= (min) Trades >= (min)

Volume <= (max) Trades <= (max)

OK Cancel Apply

Understanding The Tape

It is not necessary to see the exact size of Trades going through the tape. What is necessary is to understand what is happening at a high level. The way my tape is setup lets me know what is happening without really having to pay attention.

- If I am long and the tape is screaming green and yellow then I know am likely in a good position
- If I am long and I see blue and red on the tape I know large long positions are exiting, therefore I should probably consider exiting as well
- If I am short and I see blue and red on the tape I know I am short with longs getting out and my position is probably good
- If I am short and I see yellow and green on the tape then I know shorts are getting out and I should probably consider getting out as well

As mentioned before, I never have to pay attention to the tape. I see it out of the corner of my eye or hear it. This allows me to pay attention to my execution charts.

The DOM

The DOM is the single best source of Order Flow information when it comes to putting on a trade at your defined levels. The key components of the DOM are:

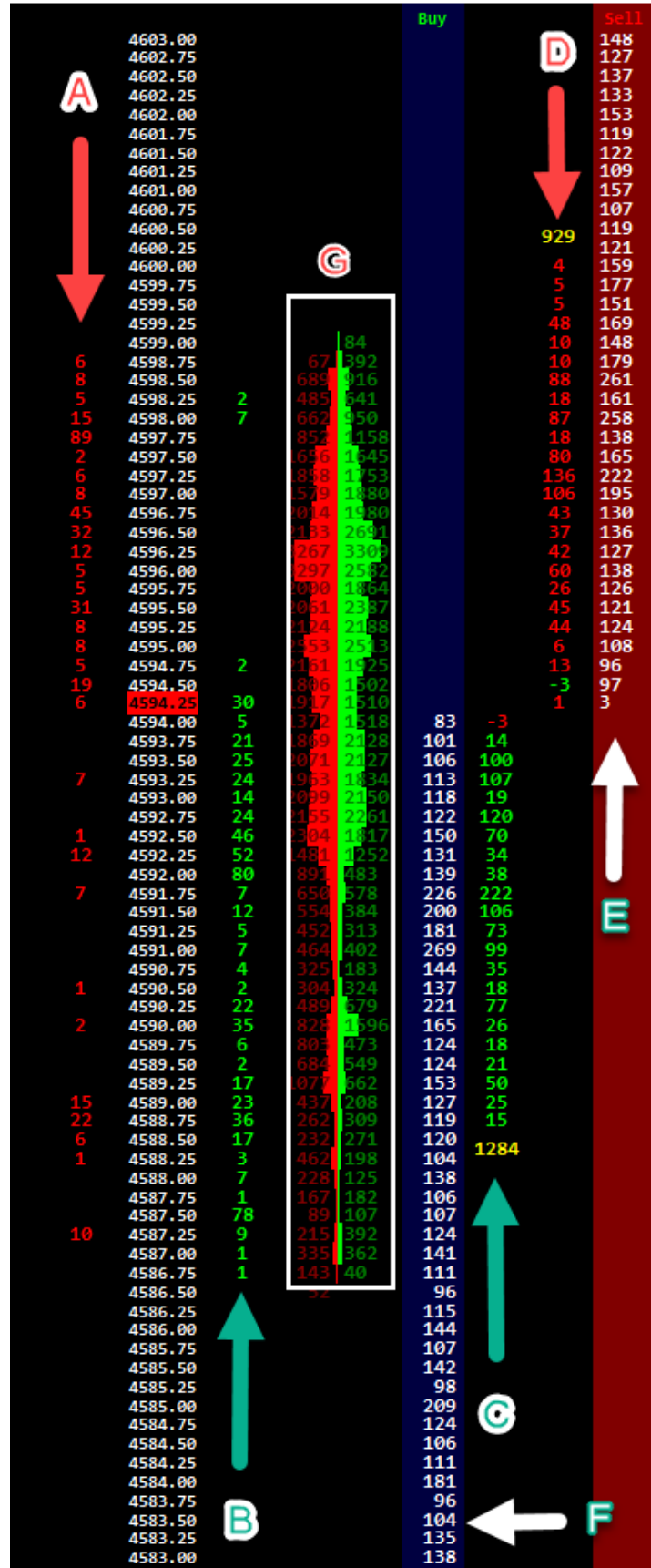
- I. Market Orders Lifting Ask / Hitting Bid
- II. Pulling / Stacking Offers and Bids

In my opinion, these are by far the most important Order Flow data points you can use when putting on a trade. Everything that I look at, whether it be the Footprint setups with faded volume, completed auctions, imbalances or when up against LVNs identified on the Volume by Price chart, I am always checking the DOM to see if I am Buying with Buyers or Selling with Sellers.

While resting Orders and the Current Traded Volume Histogram are good pieces of information, they are less of a factor.

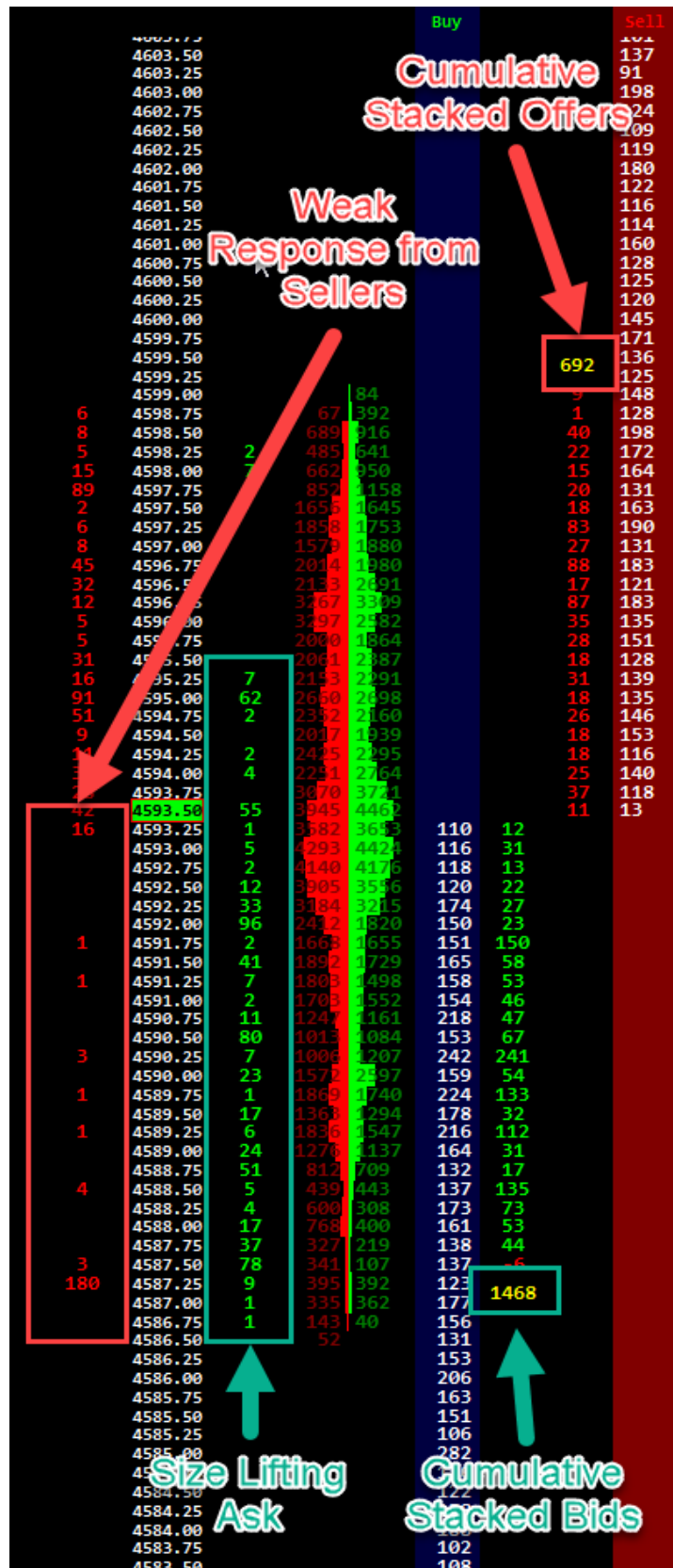
Columns of The Dom:

- a. Market Orders hitting the Bid
- b. Market Order lifting the Ask
- c. Stacked Bids
- d. Stacked Offers
- e. Resting Offers (Sell Limit Orders)
- f. Resting Bids (Buy Limit Orders)
- g. Current Traded Volume Histogram



The Dom (Identifying Buying Strength and Offer Weakness)

In this image the Bids are stacked against the Offer 1468 / 692. Buyers are lifting the Ask with strong Market Orders while the response from the Sellers, Market Orders, are weak. This indicates that the market is Bid. With the stacked Bid Support you have a larger interest lifting the Offer, weakness on the Offer as displayed here marks a path of less resistance.



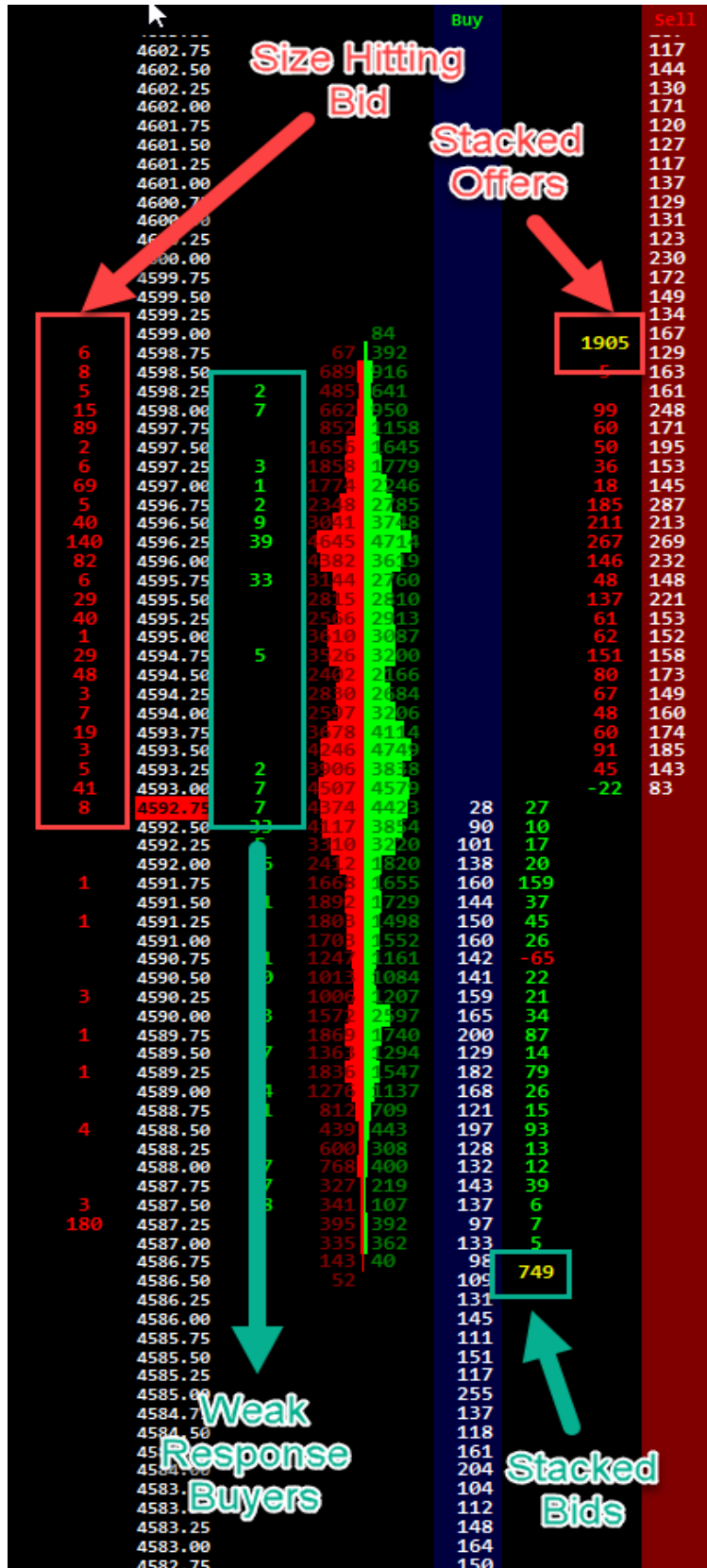
The DOM (Identifying Balanced Trade)

In the previous image we saw Buyers step in and overwhelm the Sellers and take the market higher. It is common after a move to see things even out and Sellers step in and stop the move. Here in this example we see the Offer stack evenly with the Bid and roughly equal size hitting the Bid and lifting the Offer. This is typically shown as balanced chop on the Footprint or other chart type.

	4602.00				290
	4601.75				127
	4601.50				145
	4601.25				152
	4601.00			1771	140
	4600.75			5	141
	4600.50			44	196
	4600.25			22	153
	4600.00			69	701
	4599.75			121	361
	4599.50			57	184
	4599.25			151	280
	4599.00			103	328
	4598.75			182	321
	4598.50			63	214
	4598.25			162	283
	4598.00			113	336
	4597.75			57	179
	4597.50			90	227
	4597.25			31	214
	4597.00			95	315
	4596.75	29	209	97	221
7	4596.50	206	552	155	256
6	4596.25	685	840	64	176
1	4596.00	1125	998	37	264
13	4595.75	1247	1145	-3	100
14	4595.50	1812	1928	56	57
13	4595.25	16	2561	2519	101
	4595.00	3	2841	2881	110
	4594.75	11	1625	1081	148
	4594.50	16	1139	518	172
	4594.25		561	898	173
	4594.00	19	1514	1075	194
4	4593.75	9	438	280	185
	4593.50	1	296	554	199
	4593.25	1	467	546	219
	4593.00	255	18	255	193
	4592.75	70	63	180	182
5	4592.50	26	383	586	204
	4592.25	15	612	523	250
	4592.00	12	1223	1134	193
1	4591.75	6	1784	1925	258
	4591.50	15	1593	1841	192
	4591.25	34	1258	1899	262
2	4591.00	2	1897	2174	188
	4590.75	6	1921	1600	181
	4590.50	13	402	205	213
	4590.25	210	4	210	182
	4590.00	583		72	217
20	4589.75	1	287	271	237
	4589.50	102	473	497	136
30	4589.25	4	238	302	165
	4589.00	46	212	339	150

The DOM (Identifying Selling Strength and Buying Weakness)

In this image the Offers are stacked against the Bid 1905 / 749. Sellers are hitting the Bid with strong Market Orders while the response from the Buyers, Market Orders, are weak. This indicates that the market is Ask. With the stacked Ask Support you have a larger interest hitting the Bid, weakness on the Bid as displayed here marks a path of less resistance.



The DOM (Identify Potential Volatility Premarket)

Often times in premarket when news is incoming the Bid and Offer will be completely pulled. When the news hits there is no liquidity in the Order Book. So the market can potentially whipsaw both directions till orders come back in to provide some liquidity. When I see this I have three choices:

- I. Close any position
- II. Tighten my stop
- III. Do not initiate a new trade

In this DOM example, you can see the stack on the Offer and Bid almost entirely pulled.

		-190	89
			109
		-26	85
		-2	106
		-1	141
			112
		-3	92
		-3	143
			79
		-3	76
		-2	131
		-8	62
		-13	69
			55
		-19	29
		-14	33
		-16	34
		-10	69
		-20	53
		-14	72
		-19	28
		-13	27
		-6	38
		1	41
		1	2
39			
60	54		
42	-7		
32	-22		
36	-19		
38	-10		
38	-16		
47	-22		
50	-19		
38	-17		
34	-16		
58	-22		
70	-9		
50	-14		
55	-13		
56	-13		
64	-10		
52	-9		
54	-31		
63	-4		
117	-8		
81	-6		
82	-7		
106	-240		
85			

The DOM (Identifying Potential Volatility RTH)

During RTH hours liquidity of the Order Book is much greater. However, any dissemination of scheduled news can present noticeable changes in the structure of the Order Book. Scheduled news can be planned for; however, erratic tweets or events can result in swift changes of orders. This example was taken just prior to a planned news event. The disparity I see in the orders are Bids being pulled while Offers remain stacked.

Market shocks from unplanned events such as a sudden military event, natural disaster or even random tweets from high-ranking officials around the globe can be swift, violent and will create fast market conditions before you can blink. This is why you use stops, always, always and always.

	4582.25					125
	4582.00					180
	4581.75					118
	4581.50	22	22		1171	119
81	4581.25		81	152		36
6	4581.00		201	218		92
2	4580.75	8	103	125		99
57	4580.50	1	169	210		41
48	4580.25		124	258		23
9	4580.00		471	223		69
3	4579.75		883	981		143
43	4579.50		666	899		37
1	4579.25		928	1001		99
19	4579.00		1157	1315		23
4	4578.75		1496	1747		34
3	4578.50		1243	1022		8
7	4578.25	30	1029	922		122
53	4578.00		1081	957		-2
5	4577.75		587	748		89
35	4577.50	1	713	922		83
28	4577.25		663	1004		27
7	4577.00	51	1223	2023		28
29	4576.75	2	1599	1560		3
5	4576.50	21	2037	1853		28
46	4576.25		1885	2078		20
3	4576.00	7	2017	2639		49
14	4575.75	4	2525	2287		20
20	4575.50	63	2553	2170	23	23
13	4575.25	16	2441	2802	110	-9
2	4575.00	38	2826	2710	98	-63
	4574.75	1	2746	1996	71	-37
	4574.50	3	1576	2134	101	-28
	4574.25	8	2679	1702	78	-50
	4574.00	19	1611	1442	130	-12
3	4573.75	1	676	727	176	-1
	4573.50	2	797	919	214	24
	4573.25	16	675	565	184	1
	4573.00	7	696	877	215	16
	4572.75	4	716	364	174	27
	4572.50	52	313	233	174	11
	4572.25	92	103	294	128	-1
3	4572.00	4	232	519	179	18
2	4571.75	7	298	625	120	26
	4571.50	21	705	712	116	12
	4571.25	50	485	783	112	14
30	4571.00	88	796	807	122	13
	4570.75	4	411	748	109	7
	4570.50	4	702	846	125	4
	4570.25	48	761	969	129	40
3	4570.00	23	1036	1118	127	35
	4569.75	1	462	415	107	
	4569.50	29	305	408	99	
	4569.25	26	419	759	101	
1	4569.00	9	931	1540	102	